Evaluation Study to support the Fitness Check of the Birds and Habitats Directives

Final Report
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This study to support the Fitness Check of the Birds and Habitats Directives has been prepared by a consortium led by Milieu Ltd, and also comprised of the Institute for European Environmental Policy (IEEP), ICF International and Ecosystems Ltd for the European Commission's Directorate General Environment under Service Contract number: ENV.B.3/ETU/2014/0014.

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Table of Contents

Executive summary 13
Objectives of this Study 13
Methodological approach to this study 13
Main findings 14
Résumé 21
Objectifs de cette étude 21
Approche méthodologique de cette étude 21
Principales conclusions 23
Acronyms and abbreviations 30
1 Introduction 31
1.1 Purpose of the evaluation 31
1.2 Scope of the evaluation 31
1.3 Structure of this report 32
2 Background to the Directives 33
2.1 Purpose of the Directives 33
2.2 History and evolution 33
2.3 Intervention logic 35
3 State of play 48
3.1 Introduction 48
3.2 Effective status of implementation 48
3.3 Implementation and enforcement of the Nature Directives 55
3.4 Conclusions 69
4 Methodology 71
4.1 Analytical approach to the evaluation 71
4.2 Evidence gathering 75
4.3 Desk research 75
4.4 Analysis and evaluation of evidence 83
4.5 Challenges, limitations and lessons learned 89
5 Evaluation and analysis of effectiveness questions 93
5.1 S.1 - What progress have Member States made over time towards achieving the objectives set out in the Directive and related policy documents? Is this progress in line with initial expectations? When will the main objectives be fully attained? ...94
5.2 S.2 - What is the contribution of the Directives towards ensuring biodiversity? In particular to what extent are they contributing to achieving the EU Biodiversity Strategy Objectives and Targets? 126
5.3 S.3 - Which main factors (e.g. implementation by Member States, action by stakeholders) have contributed to or stood in the way of achieving the Directive's objectives? 149

5.4 S.4 - Have the directives led to any other significant changes both positive and negative? 170
6 Evaluation and analysis of efficiency questions 182
6.1 Y.1 - What are their costs and benefits (monetary and non-monetary)? 183
6.2 Y.2 - Are availability and access to funding a constraint or support? 211
6.3 Y.3 - If there are significant cost differences between Member States, what is causing them? 226
6.4 Y.4 - Can any costs be identified (especially regarding compliance) that are out of proportion with the benefits achieved? In particular, are the costs of compliance proportionate to the benefits brought by the Directives? 233
6.5 Y.5 - Can good practices, particularly in terms of cost-effective implementation, be identified? 244
6.6 Y.6 - What are likely to be the costs of non-implementation of legislation? 263
6.7 Y.7 - Taking account of the objectives and benefits of the Directives, is there evidence that they have caused unnecessary administrative burden? 270
6.8 Y.8 - Is the knowledge base sufficient and available to allow for efficient implementation? 284
7 Evaluation and analysis of relevance questions 302
7.1 R.1 - Are the key problems facing species and habitats addressed by the EU nature legislation? 303
7.2 R.2 - Have the Directives been adapted to technical and scientific progress? 327
7.3 R.3 - How relevant are the Directives to achieving sustainable development? 343
7.4 R.4 - How relevant is EU nature legislation to EU citizens and what is their level of support for it? 357
7.5 R.5 - What are citizens' expectations for the role of the EU in nature protection? 368
8 Evaluation and analysis of coherence questions 373
8.1 C.1 - To what extent are the objectives set up by the Directives coherent with each other? 374
8.2 C.2 - To what extent are the Directives satisfactorily integrated and coherent with other EU environmental law e.g. EIA, SEA? 394
8.3 C.3 - Is the scope for policy integration with other policy objectives (e.g. water, floods, marine, and climate change) fully exploited? 409
8.4 C.4 - To what extent do the Nature Directives complement or interact with other EU sectoral policies affecting land and water use at EU and Member State level (e.g. agriculture, regional and cohesion, energy, transport, research, etc.)? 420
C.5 - How do these policies affect positively or negatively the implementation of the EU nature legislation? 420
8.5 C.6 - To what extent do they support the EU internal market and the creation of a level playing field for economic operators? 479
8.6 C.7 - To what extent has the legal obligation of EU co-financing for Natura 2000 under Article 8 of the Habitats Directive been successfully integrated into the use of the main sectoral funds? 485

8.7 C.8 - Are there overlaps, gaps and/or inconsistencies that significantly hamper the achievements of the objectives? 497
8.8 C.9 - How do the Directives complement the other actions and targets of the biodiversity strategy to reach the EU biodiversity objectives? 498
8.9 C.10 - How coherent are the Directives with international and global commitments on nature and biodiversity? 504
9 Evaluation and analysis of EU added value questions 520
9.1 AV.1 - What has been the EU added value of the EU nature legislation? 521
A.V.2 - What would be the likely situation in case of there having been no EU nature legislation? 521
9.2 AV. 3 - Do the issues addressed by the Directives continue to require action at EU level? 549
10 Conclusions 564
10.1 Main conclusions for each evaluation criterion 564
10.2 What has worked well and what hasn’t worked well? 572
10.3 Are the Directives fit for purpose? 576
10.4 Implementation issues: areas for improvement 578
Annexes 581
References 605
Species glossary 666

List of Tables

Table 1 Nature Directives' intervention logic scheme 37
Table 2 Evidence gathering questionnaires sent and received, by type of stakeholder78
Table 3 The percentage overlap between marine Important Bird and Biodiversity Areas (IBAs) and coastal and marine SPAs 97
Table 4 The percentage of evidence gathering questionnaire responses allocated to each category of progress relating to the establishment of the SPA and SCI networks 101
Table 5 Percentage of evidence gathering questionnaire responses allocated to each category relating to progress towards the achievement of the overall objectives of the Directives 120
Table 6 Online public consultation questionnaire responses by stakeholder on whether the Directives been effective in protecting nature 121
Table 7 Online public consultation questionnaire responses by stakeholder on effectiveness of the Directives to-date.....121
Table 8 Summary of evidence gathering questionnaire responses to the contribution made by the Nature Directives to the EU's biodiversity target 132
Table 9 Summary of online public consultation responses to Q20 'How significant are the benefits associated with the Directives?' 133
Table 10 Summary of progress on the Biodiversity Strategy to 2020 actions supporting Target 1 134
Table 11 Selected LIFE projects since 2002 that have focused on IAS 145
Table 12 Summary of strengths and weakness of Natura 2000, according to Crofts (2014) 152
Table 13 Average item scores and factor scores from a survey of conservation professionals in Europe about Natura 2000 153
Table 14 Factors affecting implementation of the Directives in the Member States ..155
Table 15 Summary of respondents' responses to Question 18 of the public consultation on factors that have contributed to the Directives' successes 157
Table 16 Typology of costs resulting from the Nature Directives 185
Table 17 Typology of benefits.....198
Table 18 Benefits per hectare of Natura 2000 sites 200
Table 19 Synthesis of views on funding as a support or constraint in reaching the objectives of the Nature Directives, based on the evidence gathering questionnaire. 218
Table 20 Responses to Q19 on whether insufficient funding limits progress towards reaching the objectives of the Nature Directives 223
Table 21 Reasons for cost differences.....231
Table 22 Results of Q22 of the online public consultation questionnaire 242
Table 23 Results of Q24 of the online public consultation 261
Table 24 Key knowledge requirements for implementation of the Birds and Habitats Directives 285
Table 25 Responses to the evidence gathering questionnaire on whether the knowledge base is sufficient and available to allow for efficient implementation 290
Table 26 Knowledge gaps identified by respondents to the evidence gathering questionnaire and the percentage identifying each as a constraint on the implementation of the Directives 291
Table 27 Overview of the provisions of the Nature Directives addressing key problems 324
Table 28 Stakeholder questionnaire responses relating to whether the Annexes should be updated 331
Table 29 The reasons given by stakeholders in the evidence gathering questionnaire for updating the Annexes.....331

Table 30 Evidence gathering questionnaire responses to the contribution of the Directives to sustainable development.....346
Table 31 Responses to whether or not the Directives contribute to sustainable development through biodiversity and ecosystem service benefits 347
Table 32 The number of respondents that said the Directives permit sustainable development.....351
Table 33 Percentage of Europeans that think the stated roles of the Natura 2000 network are either very important or somewhat important 359
Table 34 Seriousness of specific aspects of biodiversity loss, according to Europeans 360
Table 35 Reasons why it is important to halt biodiversity loss, according to Europeans 361
Table 36 Measures that the EU should take to protect biodiversity, according to Europeans 370
Table 37 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for Cohesion Policy 442
Table 38 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for energy 451
Table 39 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for the Fisheries and maritime sector 464
Table 40 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for research and innovation 472
Table 41 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for Transport Policy.....477
Table 42 Integration of biodiversity and Natura 2000 into EU sectoral funding priorities during the 2014-2020 funding period (Kettunen et al, 2014a) 489
Table 43 Examples of good and failed practices in integration, identified by evidence gathering questionnaires and National Missions 492
Table 44 Results of Q31 of the online public consultation questionnaire 495
Table 45 International agreements on nature and biodiversity to which the EU and/or Member States are party. 504

List of Boxes

Box 1 Definition of Favourable Conservation Status for habitats and species of Community interest, Habitats Directive 39
Box 2 Proposed key components of a coherent Natura 2000 network 40
Box 3 The Fitness Check evaluation questions as presented in this study.....72
Box 4 The underlying causes of problems with the Article 6(3) procedures.....103
Box 5 Examples of initiatives to increase connectivity between protected areas.....108
Box 6 Examples of benefits of protected area designation for non-target species, i.e. the umbrella effect 130
Box 7 Stakeholder engagement in nature conservation through the German Association for Landcare.....162
Box 8 Role of NGOs in Natura 2000 designation process in the new Member States 162
Box 9 National estimates of the costs of implementing Natura 2000.....187
Box 10 Costs of implementing the Nature Directives in the Czech Republic 189

Box 11 Costs of public administration of the Nature Directives in Malta 189
Box 12 Examples of conflicts between Natura 2000 and development 191
Box 13 Review of national statistics on developments and Appropriate Assessment 191
Box 14 Opportunity costs of foregone minerals extraction.....194
Box 15 Opportunity costs of Natura 2000 in the agriculture sector 195
Box 16 Opportunity costs of Natura 2000 in the forestry sector 195
Box 17 Approval of development applications in Slovenian Natura 2000 areas.....196
Box 18 Costs of damage caused by large carnivores 196
Box 19 Losses to aquaculture from protected species.....197
Box 20 Natura 2000 delivers valuable ecosystem services 201
Box 21 Tool for valuing conservation measures at Natura 2000 sites.....203
Box 22 Ecosystem services delivered by Natura 2000 204
Box 23 Benefits of species protection: The White Stork in Poland 205
Box 24 Types of jobs created by implementing the Natura 2000 network.....206
Box 25 Natura 2000, jobs and skills in Greece.....207
Box 26 Wildlife tourism in Estonia, the UK, the Netherlands and Slovenia 207
Box 27 Benefits of Natura 2000 for agriculture and food production 208
Box 28 Assessment of financial costs to achieve German biodiversity targets 215
Box 29 Availability and access to funding from EAFRD for the Nature Directives 215
Box 30 Factors affecting restoration costs in Estonia 228
Box 31 Examples of good practice in enhancing efficiency and timescales for AA 230
Box 32 Costs of national implementation – monitoring of coal-fired energy plant in the UK 231
Box 33 Comparisons of costs and benefits at Natura 2000 sites.....235
Box 34 Benefits and costs of habitat conservation and restoration 236
Box 35 Engbertsdijksvenen, the Netherlands – costs of controlling Nitrogen emissions 236
Box 36 Costs of species action 237
Box 37 Costs of implementation in Ireland.....239
Box 38 Costs associated with plans and projects 240
Box 39 Disproportionate costs – findings from the national missions 241
Box 40 Factors giving rise to disproportionate costs in the UK 241
Box 41 Examples of cost-effective implementation in the UK.....246
Box 42 The ports sector 248
Box 43 Renewables development in Slovenia, Ireland and Austria – the role of sensitivity mapping and strategic planning.....249
Box 44 The extractive industries.....249
Box 45 Hunters' contributions 250
Box 46 Mapping tools in Malta.....250
Box 47 SCANS – survey collaboration between Member States.....251
Box 48 Streamlined data collection in the UK 251
Box 49 Examples of cost-effective use of technology and devices 251
Box 50 Institutional development in Germany 252
Box 51 France – Cost-effective approaches to site management.....253
Box 52 Netherlands - Spatial development and land consolidation 253
Box 53 Good practice in AA and development permitting 253
Box 54 Austria: Streamlining of consultation and screening 254
Box 55 Projects of Common Interest (PCIs) - enhancing the cost effectiveness of applying the Directives to energy infrastructure projects 255
Box 56 Nuclear infrastructure projects (NISP) in the UK – developing efficient approaches to evidence and assessment 255
Box 57 Strategic planning of infrastructure in Poland 256
Box 58 The Netherlands – cost-effective investment in tackling nitrogen deposition 257
Box 59 Multiple benefit initiatives in the UK and Netherlands 257
Box 60 Germany – Cost savings through joint action with the WFD and MSFD.....258

Box 61 Species licensing in the UK....258
Box 62 Codes of conduct and common exemptions in the Netherlands and the UK..259
Box 63 Bat Conservation Trust, UK....259
Box 64 Germany - Species protection can reveal cheaper solutions....260
Box 65 Volunteering in Germany, Estonia, Ireland and the UK....260
Box 66 Examples of the costs of inaction....267
Box 67 Possible consequences of non-implementation at Member State level – further examples from the evidence gathering questionnaires and National Missions....268
Box 68 Administrative burdens related to species protection....276
Box 69 Unnecessary burdens caused by implementation problems....277
Box 70 Burdens associated with screening processes....278
Box 71 Administrative burdens related to EIA and SEA....278
Box 72 Burdens caused by scientific uncertainty....279
Box 73 Burdens caused by capacity constraints....280
Box 74 Examples of the administrative burdens of infrastructure development....280
Box 75 Administrative burdens of infrastructure development in Germany....281
Box 76 Administrative burdens caused by European reporting requirements....282
Box 77 Case example - knowledge gathering activities supporting the implementation of the Nature Directives in France....288
Box 78 Case example - knowledge gathering activities supporting the implementation of the Nature Directives in Germany....288
Box 79 The effect of biodiversity knowledge gaps on the London Array offshore wind development....293
Box 80 Issues affecting the quality and completeness of data used to assess the conservation status of habitats and species in the 2007-2012 reporting period....295
Box 81 Examples of Guidance documents on implementation of the Nature Directives....299
Box 82 Member State reporting on pressures and threats for the period 2007-2012305
Box 83 The Directives as catalysts for actions against nitrogen pollution: Examples from the Netherlands and Belgium....318
Box 84 The assessment of transportation and service infrastructure: Opportunities for project developers....320
Box 85 Species protection and the case law of the European Court of Justice (CJEU): The example of hunting....321
Box 86 C-103/00, Commission v. Greece – '*Caretta caretta* on Zakinthos'....322
Box 87 Access to funding from the LIFE programme....323
Box 88 Guiding Principles for Sustainable Development in the 2006 Sustainable Development Strategy....345
Box 89 Example of the contribution of biodiversity related land management actions to sustainable development in rural areas in Austria....348
Box 90 Example of the contribution of Natura 2000 to sustainable development in rural areas in the Czech Republic....349
Box 91 Example of the contribution of Natura 2000 to sustainable development through tourism and recreation in Germany....349
Box 92 The contributions of conservation measures for the Iberian Lynx to sustainable development through increased tourism in the Andújar reagion of Spain....350
Box 93 The contributions of conservation measures in a forest area to sustainable development through increased tourism, Greece....350
Box 94 The benefits of strategic planning and a strategic approach to the Via Baltica in Poland....353
Box 95 Key areas for improving implementation of the Directives in England, as identified in the UK HM Government Review of the Birds and Habitats Directives....354
Box 96 Eurobarometer....358
Box 97 Eurobarometer....368
Box 98 Views of the stakeholders on coherence between the Directives....380

Box 99 Positive examples from RGI 446
Box 100 Good practices with respect to wind farms 448
Box 101 Significant positive changes in managing marine biodiversity.....458
Box 102 Example of a package of measures restricting damaging fishing practices in the Netherlands.....460
Box 103 EIP-AGRI focus group on organic farming.....471
Box 104 Problems associated with improper implementation of environmental procedures 475
Box 105 Examples of EU research framework projects supporting implementation of the Natura 2000 network and/or wider objectives of the Nature Directives 487
Box 106 Examples of increases in surface of protected area.....525
Box 107 Best practice – coherence of the network.....527
Box 108 Conservation status of species protected by the Directives.....529
Box 109 Examples of species recovery triggered by the Directives.....529
Box 110 Common standards set out in nature legislation.....530
Box 111 Examples of monitoring measures.....531
Box 112 Examples of increased knowledge 532
Box 113 Examples of improved protection due to the Directives 534
Box 114 Examples of stronger protection systems due to the Directives 535
Box 115 Examples from stakeholders in favour of common standards 537
Box 116 Examples of improved cooperation 538
Box 117 EU common negotiating position 539
Box 118 Examples of contribution towards global biodiversity conservation 539
Box 119 Impact on accession countries 539
Box 120 Examples of increased public awareness initiatives.....540
Box 121 Examples of cooperation between Member States 542
Box 122 SCANS – survey collaboration between Member States.....542
Box 123 Examples of the increased use of EU Funds 543
Box 124 Examples of integration of biodiversity in business planning 545
Box 125 Initiatives of efficient integrated management approaches 545
Box 126 Examples of positive conservation results.....552
Box 127 Examples of effective EU enforcement action.....555
Box 128 Example of sectoral guidance 559
Box 129 Example of Member States cooperation and transboundary cooperation....559
Box 130 Examples of the impact of the Directives in promoting jobs and growth 561

List of Figures

Figure 1 Key milestones in the evolution of EU nature legislation 35
Figure 2 Cumulative surface area identified as pSCI or SCI or cumulative surface area of SPA.....49
Figure 3 % of the terrestrial portion of a Member State designated as Natura 2000 at the end of 2013.....50
Figure 4 Conservation status by main type of habitats.....53
Figure 5 Proportion of non-bird species assessments in conservation status class 54
Figure 6 Share of reported breaches per environmental sector (100% = 8973) 57
Figure 7 Number of reported breaches under the Birds and Habitats Directives (per Member State and per source) 59
Figure 8 Number of infringements to the Habitats Directive over time (per groups of Member States differentiated according to the time of their accession to the EU)* 61
Figure 9 Types of infringements of the Birds and Habitats Directives per source (as % of total).....63

Figure 10 Project phases 71
Figure 11 Intervention logic of the Fitness Check 74
Figure 12 Overview of the total number of responses per evaluation question 79
Figure 13 Snapshot of the Consultation Information Management Tool 80
Figure 14 The overlap between IBAs and SPAs in the EU in 1993 and 2013.....97
Figure 15 Sufficiency of the Sites of Community Importance (SCI) component of the Natura 2000 network 99
Figure 16 Marine habitats and species 99
Figure 17 EU Biodiversity Strategy to 2020 targets and actions 127
Figure 18 The benefits and costs of Natura 2000 under different implementation scenarios: Illustrative schematic.....264
Figure 19 Frequency (%) of assessments that reported pressure/threat categories for birds, non-bird species and habitats for 2007-2012.....307
Figure 20 Share of Europeans that believe their quality of life is affected by the state of the environment and by economic factors 361
Figure 21 Responses to question C.4 by policy sector addressed.....421
Figure 22 Responses to question C.5 by policy sector addressed.....422
Figure 23 Relationship between CAP general and specific objectives.....424

Executive summary

This Executive Summary addresses the objectives, methodology and main findings of the evaluation study to support the Fitness Check of the Birds and Habitats Directives carried out for the European Commission. The study has been prepared by a consortium of experts led by Milieu Ltd and including the Institute for European Environmental Policy (IEEP), ICF International and Ecosystems Ltd.

Objectives of this Study

As part of its Regulatory Fitness and Performance Programme (REFIT), the Commission is undertaking a Fitness Check of the Birds and Habitats Directives[1][2]. This comprehensive, evidence-based assessment of the current regulatory framework determines if it is 'fit for purpose' and delivering against its policy objectives.

The Fitness Check is a retrospective evaluation of both pieces of legislation covering the implementation period since their entry into force. It is undertaken according to the Commission's Better Regulation Guidelines and will provide an informed basis for future decisions on EU nature legislation and policy.

The mandate for the Fitness Check sets out the overall aim and scope of the exercise (see Annex I), including specific evaluation questions to be answered through the process[3]. The Directives are assessed on the extent to which they have been:

- **Effective** in meeting their objectives.
- **Efficient** in the use of the resources needed for the achievement of the objectives.
- **Relevant** given the current needs and circumstances.
- **Coherent** both internally and with other EU legislation, policies and measures.
- And whether the Directives represent **EU added value**.

Methodological approach to this study

The methodology for the evaluation study was developed by the consortium in close cooperation with the Commission, taking into account the need to gather, collate and evaluate the best available evidence in a transparent and robust manner. It is consistent with the Commission's Better Regulation guidelines and toolbox. The evaluation assesses the performance of each Directive from the time of its adoption - the Birds Directive in 1979 and the Habitats Directive in 1992 – to the present day, by presenting and analysing relevant evidence in response to each of the evaluation questions contained in the Fitness Check mandate. Assessment of the evaluation questions is based on the intervention logic for the Directives, explaining how the objectives, activities, outputs, results and impacts work together to respond to the identified needs, and was guided by an agreed evaluation framework specifying judgement criteria, data collection requirements and tools and analysis methods for each question.

[1] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (OJ L 20, 26.1.2010, p. 7-25).
[2] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.7.1992, p. 7-50).
[3] Available at: http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/Mandate%20for%20Nature%20Legislation.pdf

Work on the study took place from November 2014 – February 2016. The research and evidence gathering process was carried out from November 2014 – November 2015 and consisted of extensive desk research and consultations. Desk research covered over 1,800 documents identified through the consultants' own databases and bibliographic searches, as well as through stakeholder consultation. Relevant documents were stored in a Reference Database, which was available on the Commission's website for the Fitness Check during the evidence gathering phase.

A broad-ranging consultation was carried out, focusing on five complementary activities:

- A **targeted stakeholder consultation**, addressed selected stakeholders in all Member States and at EU level through a specially designed 'evidence gathering questionnaire'. The questionnaire was sent to 159 stakeholders, of whom 102 responded (64%). 13 additional stakeholders sent unsolicited responses which were also taken into account.
- **National Missions to 10 representative Member States** followed up on the evidence gathering questionnaires to broaden the scope and gather additional evidence. These covered Estonia, France, Germany, Malta, Netherlands, Poland, Spain, Slovakia, Sweden and the UK.
- **Focus groups and Commission meetings** with EU level organisations and key Commission services enabled deeper discussion of relevant themes. 30 EU level organisations comprising industry, land users and NGOs participated in four focus groups. The Commission services contributed to the Steering Group process and ad-hoc meetings with DGs AGRI, GROW, MARE and REGIO.
- **An online public consultation** allowed interested public and stakeholders to express their views. 552,472 replies were received, the largest response the Commission has ever received to an online consultation. This response was influenced by a number of on-line campaigns.'
- **A high-level conference** attended by approximately 400 stakeholders, including high-level officials at national and EU level, allowed the presentation of emerging findings and collection of feedback.

Responses to the evidence gathering questionnaire were tracked through a dedicated database which sorted by question and other criteria, enabling high-level review and synthesis of evidence, as well as quantification of stakeholder responses for some questions. The results of this analysis, combined with the literature review, allowed the triangulation of evidence from different perspectives and sources, where possible.

The research was comprehensive, reached many stakeholders and relied heavily on the inputs provided through consultation. The evaluators were able to place more weight on the views of stakeholders where these were supported by evidence. Stakeholders from certain Member States – particularly in the North and West of the EU – had a tendency to provide more examples based on case studies and published research, resulting in a stronger evidence base in some parts of the EU than others. Another limitation were the gaps in quantitative data for the assessment of costs and benefits. Finally, the lack of ex-ante assessment setting the Directives' baseline did not allow for a clear counterfactual scenario to be established for the identification of the Directives' EU added value, effectiveness or proportionality of costs and benefits.

Main findings

The main findings for the different evaluation criteria (effectiveness, efficiency, relevance, coherence, EU added value) according to the evidence analysed are presented below. More detailed findings for each evaluation question are presented in sections 5 - 9 of the study.

Effectiveness

This examines the extent to which the objectives of the Nature Directives have been met, and any significant factors that may have contributed to or inhibited progress towards meeting those objectives.

Considerable progress has been made in the implementation of the Directives' measures, particularly the terrestrial component of the Natura 2000 network, the legal protection of Natura 2000 sites and the protection and sustainable use of species. Progress has been slower than anticipated in the implementation of certain measures, especially the establishment of the marine Natura 2000 network, the development of site conservation measures, including management plans if needed, and providing adequate financing. There is little evidence of effective measures being taken for the management of landscape features that help to support the coherence of the Natura 2000 network.

The impacts of the measures taken to-date are not yet sufficient to meet the overall aims of the Directives. While 52% of bird species have a secure population, 17% are threatened, with a further 15% near threatened, declining or depleted. Common bird species that are dispersed in the wider countryside are most likely to show population declines, particularly in agricultural habitats. Only 16% of Annex I habitats have a Favourable Conservation Status, with most others having an unfavourable-inadequate status (47%) or unfavourable-bad status (30%). Of the Annex II non-bird species, 23% have a Favourable Conservation Status, with most species having an unfavourable-inadequate status (42%) or unfavourable-bad status (18%). Nonetheless, robust evidence shows that, where properly implemented, the Directives have reduced pressures on biodiversity, slowed declines and, with time, led to some recoveries of habitats and species.

The Directives are, without doubt, the single most important component of the EU's nature conservation framework and they make a major contribution to the EU's headline target of halting the loss of biodiversity and ecosystem services by 2020. The Directives support all of the domestic targets of the EU's Biodiversity Strategy, especially the restoration of ecosystem services under Target 2. However, the Directives alone cannot deliver the EU's biodiversity targets without complementary action at EU and national level, particularly in other key policy sectors, such as agriculture and fisheries.

The availability of funding has probably had the strongest influence on the implementation of the Directives. The increase in funding availability stimulated by the Directives has been an important component of implementation, but major shortages are limiting progress, especially in the establishment of conservation management measures. Other important factors include the degree of political support for the Directives, levels of biodiversity knowledge, the unintended effects of certain incentives and subsidies in other policy sectors and the capacity of competent authorities.

The Directives have brought unintended changes not required in the legislation but which have impacted its effectiveness. A key positive change beyond expectations is increased public awareness and stakeholder participation in nature protection. While socio-economic operators have not been consistently involved in all Member States, positive examples highlight the opportunities provided by the Directives. While some local conflicts have occurred, they have encouraged more integrated management of nature with socio-economic activities, generating business opportunities and new governance approaches that have the potential to be further developed. The high number of cases brought to national and EU courts has generated higher levels of compliance and certainty about the Directives' requirements but also some risk-averse decision-making at national and local level on permits for projects and socio-economic activities, despite the useful sectoral guidance provided by the Commission.

Efficiency

Efficiency is essentially concerned with the relationship between the costs of implementation of the Directives and the results or benefits achieved. The question here is whether these costs are reasonable in relation to the objectives pursued and the results achieved (benefits). Both 'costs' and 'benefits' can be monetary and/or non-monetary.

Implementation of the Directives involves significant costs:

- The direct costs of fully designating, protecting and managing Natura 2000 sites have been estimated by Member States at EUR 5.8bn annually across the EU.
- Opportunity costs arise where the protection of sites and species restricts otherwise desirable development, land use change and land management. These affect a small proportion of proposed developments at EU level but are of concern to many businesses, particularly where no compensation is paid.
- The costs of damage caused by some protected species (e.g. large carnivores) and associated compensation payments can be significant at local level.
- The administrative burdens of compliance with the Directives' site and species protection rules are significant. Stakeholders differ in their views on the existence of substantial unnecessary burdens, but share the view that burdens are often caused by inefficient implementation at national, regional and local level.

There are numerous examples of cost-effective implementation, including through effective consultation and stakeholder engagement, partnership approaches, strategic planning, and guidance, as well as coordinated collection and sharing of information. Sectors such as ports and renewables have much experience in developing cost-effective ways of working with the Directives.

Implementation also delivers substantial benefits:

- Core benefits are the protection and improvement of habitats and species status.
- Protection of sites and species helps to safeguard and enhance the delivery of ecosystem services, with an estimated value of EUR 200-300bn per year for Natura 2000.
- Implementation benefits local economies through job creation and tourism. Natura 2000 sites attract estimated annual expenditure on tourism and recreation of EUR 50-85bn.
- Studies indicate that the benefits of the Directives exceed the costs at EU, national and local levels, but not necessarily at all sites.
- Non-implementation would lead to a gradual erosion of the benefits of the sites and species protected by the Directives, including a loss of ecosystem services. A 1% reduction of these services would cause losses of EUR 2-3bn each year, which would accumulate over time.

The Directives have enhanced funding for nature conservation in the EU, without which finance for site, habitat and species conservation would have been much lower. However, a substantial funding gap across the EU remains a major barrier to the achievement of their objectives.

Despite an increase in research and monitoring activities, significant gaps in knowledge have led to implementation problems and delays contributing to costs and burdens. Key knowledge deficiencies include data to support the identification of marine SPAs and SCIs and the potential impacts of certain human activities on some species, as well as the location of EU protected species and habitats outside Natura 2000 sites.

Relevance

Relevance concerns the extent to which the objectives of the Nature Directives are consistent with the needs of species and habitats of EU conservation concern. It considers whether the objectives of the legislation are still necessary and appropriate.

The Directives provide a framework capable of addressing the key problems faced by habitats and species. The Directives' approach is not problem-specific and requires Member States to exercise their discretionary power to identify the most appropriate measures against adverse effects on habitats and species, irrespective of their cause. The most frequent pressures on European protected habitats and species are linked to habitat loss, fragmentation and degradation resulting from land use change, especially from agriculture. Pressures also result from forestry, hunting, fishing, building and energy development and extractive industries. Additional pressures come from invasive alien species, while climate change represents an emerging threat. The nature and extent of some of these pressures requires that the Directives work together with coherent policies in other sectors.

Stakeholders generally agree that the Directives' aims and overall approach remain valid and appropriate. Some consider that the Annexes should be further updated to reflect improvements in the conservation status of species, gaps in coverage of threatened species and taxonomic changes, however, the potential nature conservation benefits from further amendments are uncertain, and are likely be outweighed by implementation delays due to uncertainty about the need for additional Natura 2000 sites and changes to site boundaries, objectives and management measures, as well as species protection requirements.

The Directives make positive contributions to sustainable development broadly, as well as to specific related goals, such as resource management and health and social benefits. They have been designed to allow economic development in situations where it is compatible with the Directives' biodiversity objectives. Although the Directives give primacy to biodiversity objectives in certain decision-making, no evidence has been provided to show that this significantly constrains overall sustainable development. Such sustainable development could be further facilitated, however, by increasing knowledge of the location of EU protected habitats and species, allowing for identification of potential conflicts early in the development planning cycle and improving Appropriate Assessment procedures (as further discussed below).

There is a strong consensus among Europeans about the importance of nature protection. According to the 2015 Eurobarometer on 'Attitudes of Europeans towards biodiversity', a significant majority of Europeans (80%) consider the decline and possible extinction of nature to be a serious problem in Europe. The majority (89%) believe that areas where nature is protected should be expanded, with about as many (88%) supporting the strengthening of existing nature conservation rules. This reinforces the 2014 Eurobarometer ('Attitudes of European citizens towards the environment') results where a significant majority of Europeans (77%) considered EU environmental legislation necessary to protect nature in their country. Citizen interest is further demonstrated by the unprecedented participation rate in the online public consultation for this evaluation (more than 550,000 responses). While the online public consultation is not a representative survey, it showed the breadth of contrasting views linked to different interests, as well as an overwhelming majority (520,000) that believe the Directives to be important for conserving nature.

Coherence

Evaluating the coherence of legislation, policies and strategies means assessing if they are logical and consistent, internally (i.e. within a single Directive), with each other (i.e. between the two Directives), and with other legislation, as well as with relevant policies.

The Birds Directive and the Habitats Directive are largely coherent, internally and with each other, despite some differences in scope and wording of specific and operational measures. The protection regime for SPAs has been harmonised with the one applied to SACs through Article 7 of the Habitats Directive. Some of the differences between the Directives (e.g. site designation procedures and timing, de-classification of sites, procedures for amending the Annexes) have not led to any inconsistencies in practice. For those inconsistencies that have emerged due to differences in approach or wording (e.g. conditions related to species protection derogations), these have been addressed through the CJEU rulings and Commission guidance over the years.

The Nature Directives work in conjunction with other EU environmental legislation and policies. Particularly important are the Environmental Impact Assessment, Strategic Environmental Assessment, and Environmental Liability Directives, as well as legislation and policy in the water, marine and climate change areas. The objectives and goals of these instruments are coherent with the Nature Directives, although coordinated implementation in practice (e.g. reporting, data collection and sharing) is required to achieve the best outcomes and reduce costs.

There are many EU funding opportunities for financing biodiversity and Natura 2000 across different instruments. Evidence is mixed on the extent to which nature and biodiversity are successfully integrated across various EU funding programmes, in particular Common Agricultural Policy (CAP) and Cohesion Policy, as this depends on priority-setting at national and regional levels, as well as the capacity of stakeholders to absorb funds.

The CAP for 2014-2020 is potentially complementary with the Nature Directives, as some of the CAP's incentives and associated environmental conditions (e.g. cross-compliance) can be beneficial for biodiversity and can constrain harmful practices, although much depends on Member State implementation choices. Some negative impacts have arisen from the CAP in the past and the new rules and conditions for CAP Rural Development Programmes have been designed to avoid these in future, but it is as yet too early to determine the extent of this effect. Agri-environment-climate schemes are the primary means of supporting management practices that are beneficial to biodiversity. Without such support the conservation status of agricultural habitats and species would be worse than it currently is. However, the CAP could contribute even more to the goals of the Nature Directives, particularly if relevant funding for agri-environment-climate schemes were increased and more effectively tailored and targeted by Member States towards biodiversity priorities.

For fisheries, the current legal framework issued from the 2013 reform of the Common Fisheries Policy (CFP) is considered coherent with the Directives, although it still has to deliver results on the ground. The inconsistencies under the previous CFP that acted as a barrier for Member States to adopt conservation measures and restrict certain fishing practices, are addressed by the new CFP, which, together with the current progress in site designation, allows for greater coherence between CFP and the Nature Directives. The establishment of conservation management measures in marine sites remains challenging, given the lack of scientific data, inconsistent approaches across Member States and conflicts of interest.

Other areas of economic activity can impact habitats and species. In the energy sector, the push for greater share of renewable energy use, in the transport sector, incentives for the construction of road, rail, waterborne, port and other transport infrastructure, and in the extractive industries sector, activities such as mining, which support the EU's raw materials strategy, can have negative impacts. There are good examples of ways to prevent/reduce such impacts or support nature in Commission Guidance documents and through stakeholder initiatives. However, some industry stakeholders considered the Commission guidance to be insufficiently distributed and used.

There is limited evidence on the impact of the Directives on the EU internal market. The common approach provided by the Directives is considered by NGO stakeholders in par-

ticular as vital to avoid a 'race to the bottom' in environmental standards, while giving business legal certainty. However, some businesses highlighted the fact that different implementation approaches across Member States have negatively impacted the intended level playing field.

Regarding international commitments on nature and biodiversity, the Directives are generally considered as coherent. Only minor inconsistencies have been identified, mostly in relation to species protection, and the Directives are key instruments for the EU to deliver on its international commitments.

EU Added Value

Evaluating EU added value means assessing the benefits/changes resulting from implementation of the Nature Directives, which are additional to those that would have resulted from action solely taken at national and/or regional levels. It also aims to determine whether EU action is still needed to achieve the objectives of the legislation.

The transnational character of nature justifies EU level action as a more effective way to achieve the conservation objectives of the Directives. Evidence provided shows that the Directives have introduced innovative changes that provide added value to what would likely have resulted without the EU legislation.

The establishment of Natura 2000 as a coherent network of sites based on scientific information, a 'biogeographical regions' approach and a concept of Favourable Conservation Status have led to a substantial increase in the extent of protected areas. The Nature Directives introduced a flexible approach to the protection and management of sites, allowing for socio-economic activities to take place, provided they can be carried out in harmony with biodiversity objectives. However, the full potential added value of the Natura 2000 network of protected sites envisioned by the Directives has been impacted by delays in site selection and designation and in the adoption of the necessary conservation measures, which has in turn complicated the development of integrated approaches. Private sector stakeholders have raised concerns about the challenges in taking socio-economic factors into account and called for more guidance from the EU.

The transnational species protection standards set up under the Directives have led to the control of illegal hunting practices and reversed the decline of some species. Evidence from countries outside the EU shows that such levels of protection would likely have been impossible if Member States were acting individually, without the requirements of the Directives.

The Directives set up harmonised standards of protection and requirements, without which there would have been a patchwork of differing regulations and requirements for development across the EU, interfering with the functioning of the internal market.

While the Directives have added value by ensuring greater availability of knowledge and data, increased public awareness, better stakeholder participation and use of public funding for biodiversity than would have been achieved with solely individual national measures, progress varies according to national implementation approaches and choices, and remains dependent on support at EU level.

In brief, the EU added value of the Directives is linked to effectiveness and efficiency in achieving their objectives as expected. Delays in implementation, lack of integration and shortage of funding limit the full potential of the Directives' EU added value. EU level action for the conservation and restoration of Europe's biodiversity remains necessary and even urgent, given the continued decline of habitats and species in the EU. Evidence points to the need for EU action to strengthen policy integration (e.g. CAP, CFP) and to address potentially counter-productive impacts of sectoral activities. Evidence and stakeholders' views indicate that without EU enforcement and pressure the implementation of the Nature Directives would have been weaker, and that the positive results for nature conservation justify further EU enforcement action.

Overall conclusion

The balance of the evidence shows that the Directives are fit for purpose, and clearly demonstrate EU added value. The Directives have generated many important benefits for nature conservation and sustainable development overall. They provide a balanced and workable framework for addressing the varying interests of stakeholders while respecting nature conservation objectives. Overall the costs of implementation are reasonable, and outweighed by the benefits, although they do impact some stakeholders more than others. The evaluation shows that problems with the pace and extent of progress towards the objectives of the Directives are not due to the legislation itself but stem from its implementation. The Directives have evolved over time (e.g. the accession of new Member States) and remain relevant, with no major suggestions for changes to the main texts arising during the stakeholder consultations. One possible exception relates to the evidence suggesting that the Annexes of the Directives should be updated (to improve species coverage, align with international agreements' annexes or take account of changes in the conservation status). However, the balance of evidence suggests that updates at this stage would generate uncertainty and be counter-productive in both nature conservation and economic terms.

Despite the overall positive conclusion on the Directives' fitness for purpose, a number of significant implementation challenges have been identified. These impact not only the achievement of the objectives of the Directives, but also the costs and burdens placed on authorities and stakeholders, and the ability to simultaneously achieve the goals of other EU policies, especially in key economic sectors. While some problems have decreased over time as a result of experience, others require future action, such as increased funding, improved management planning, more and better information, increased guidance, more integration and joined-up delivery with other policies, and increased awareness and involvement of stakeholders. Those measures should mirror the numerous examples of cost-effective implementation, developed over many years of experience, which demonstrate that, when implemented well, the Directives provide an efficient framework for protecting.

Résumé

Ce résumé présente les objectifs, la méthodologie et les principales conclusions de l'étude d'évaluation dans le cadre du Bilan de qualité des directives relatives aux oiseaux et aux habitats naturels menée au profit de la Commission européenne. Cette étude a été élaborée par un consortium d'experts mené par Milieu Ltd, comprenant l'Institut pour une Politique Européenne de l'Environnement (IEEP), ICF International et Ecosystems Ltd.

Objectifs de cette étude

Dans le cadre de son Programme pour une Réglementation affûtée et performante (REFIT), la Commission européenne a entrepris un bilan de qualité des directives « Oiseaux » et « Habitats »[4] [5]. Cette évaluation exhaustive et réalisée sur base de données scientifiques du cadre législatif actuel vise à déterminer si ce cadre est adapté à ses objectifs politiques et permet de les atteindre.

Ce Bilan de qualité constitue une évaluation rétrospective des deux actes législatifs depuis leur entrée en vigueur. Cette étude est menée conformément aux Lignes directrices pour une meilleure réglementation émises par la Commission et forment une base de référence permettant une prise de décision politique et législative relative à la nature éclairée.

Le mandat du Bilan de qualité décrit l'objectif général et la portée de l'étude (voir Annexe I), y compris les questions d'évaluation spécifiques auxquelles le processus de l'étude permettra de répondre[6]. Nous évaluerons en quelle mesure les directives sont :

- Sont efficaces dans la poursuite de leurs objectifs,
- Gèrent ressources nécessaires à atteindre leurs objectifs de manière efficiente,
- Demeurent pertinentes au vu des besoins et des circonstances actuels,
- Sont cohérentes, à la fois en internet et vis-à-vis du reste de la législation des politiques et des mesures de l'UE,
- Représentent une valeur ajoutée de l'UE.

Approche méthodologique de cette étude

La méthodologie adoptée pour cette étude a été développée par le consortium en étroite coopération avec la Commission, en tenant compte de la nécessité d'assembler, de recouper et d'évaluer les meilleures données disponibles de manière transparente et consistante. Cette méthodologie est conforme aux Lignes directrices pour une meilleure réglementation et à la Boîte à outils de la Commission. L'étude propose une évaluation des performances de chaque directive de son adoption (1979 pour la Directive sur les Oiseaux, 1992 pour la Directive sur les Habitats) à aujourd'hui, en présentant et en analysant les données pertinentes en réponse à chacune des questions d'évaluation spécifiques mentionnées dans le mandat du Bilan de qualité. L'évaluation des questions est fondée sur la logique d'intervention des directives, expliquant de quelle manière les objectifs, les activités, les produits, les résultats et les impacts répondent ensemble aux

[4] Directive 2009/147/EC du Parlement européen et du Conseil, du 30 novembre 2009, concernant la conservation des oiseaux sauvages (JO L 20, 26.1.2010, pp. 7-25).
[5] Council Directive 92/43/CEE Conseil, du 21 mai 1992, concernant la conservation des habitats naturels ainsi que de la faune et de la flore sauvages JO L 206, 22.7.1992, pp. 7-50).
[6] Disponible en ligne (en anglais): http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/Mandate%20for%20Nature%20Legislation.pdf

besoins identifiés et ont été guidés par un cadre d'évaluation approuvé, spécifiant les critères de jugement, les spécifications quant à la collecte de données et les outils et méthodes d'analyse à appliquer pour chaque question.

L'étude a été réalisée entre novembre 2014 et février 2015. Les recherches et la collecte d'informations se sont étendues sur une période allant de novembre 2014 à novembre 2015, sous forme de recherches documentaires approfondies et de consultations. 1800 documents, issus des bases de données des consultants eux-mêmes et de recherches bibliographiques ainsi que des consultations menées avec les différents acteurs, ont été passés en revue dans le cadre des recherches documentaires. Les documents pertinents ont été regroupés au sein d'une base de données de référence, disponible sur le site internet de la Commission dédié au Bilan de Qualité durant toute la phase de collecte d'informations.

Une consultation à large spectre a été menée dans le cadre de cette étude, structurée autour de cinq activités complémentaires :

- Une **consultation ciblée auprès des acteurs concernés** sélectionnés parmi tous les Etats membres et au niveau européen, à qui fut soumis un questionnaire destiné spécialement à la collecte d'informations. Ce questionnaire a été envoyé à 159 acteurs, dont 102 (64%) ont fourni des réponses. 13 acteurs supplémentaires, bien que non-sollicités, ont fourni des réponses, qui ont été également prises en compte.
- Des **missions nationales dans 10 Etats membres représentatifs**, faisant suite aux réponses aux questionnaires, afin d'étendre le cadre de l'étude et de collecter davantage d'informations. Ces missions ont été réalisées en Allemagne, en Estonie, en Espagne, en France, à Malte, aux Pays-Bas, en Pologne, au Royaume-Uni, en Slovaquie et en Suède.
- Des réunions des **groupes cible et de la Commission** avec des organisations au niveau de l'UE et les services clé de la Commission ont donné lieu à des discussions approfondies sur les thèmes pertinents de cette étude. 30 organisations au niveau européen, parmi lesquelles des industries, utilisateurs des terres et ONG, organisées en 4 groupes cible, ont pris part à ces discussions. Les services de la Commission ont contribué au Comité directeur et aux réunions ad-hoc aux côtés des DG AGRI, GROW, MARE et REGIO.
- Une **consultation publique en ligne** a permis au public et aux acteurs intéressés de partager leur point de vue. 552 472 réponses ont été collectées, soit le plus grand nombre de réponses jamais reçues par la Commission pour une consultation en ligne. Ce taux de réponse résulte notamment de nombre de campagnes en ligne.
- Une **conférence de haut niveau**, rassemblant environ 400 participants parmi lesquels des haut-fonctionnaires au niveau national et européen, a permis de présenter les premières conclusions de l'étude et de collecter les réactions de l'audience.

Les réponses au questionnaire de collecte d'informations ont été réunies au sein d'une base de données dédiée, permettant de trier les réponses suivant les questions et d'autres critères, permettant une analyse et une synthèse de haut niveau des informations, ainsi que de quantifier les réponses des acteurs à certaines questions. Les résultats de cette analyse, combinés avec la revue de la littérature disponible, a permis, là où cela été possible, de trianguler les données de différentes sources et perspectives.

Cette recherche a été menée de manière exhaustive, a impliqué un grand nombre d'acteurs et s'est largement appuyée sur les données recueillies lors des consultations. Les vues émises par les acteurs qui ont pu être soutenues par les informations recueillies sont celles sur lesquelles les évaluateurs ont accordé le plus de poids. Une tendance à

fournir davantage d'exemples tirés d'études de cas et de recherches publiées est notable chez les acteurs de certains Etats membres, en particulier d'Europe du nord et de l'ouest, rendant les bases d'informations plus solides dans certaines parties de l'Europe que dans d'autres. Des lacunes quant aux données quantitatives pour l'évaluation des coûts et bénéfices ont constitué une autre limitation pour cette étude. Enfin, le manque d'évaluation préalable à l'établissement de la base de référence des directives n'a pas permis l'établissement un scénario contrefactuel visant à identifier la valeur ajoutée européenne, l'efficacité et la proportionnalité des coûts et des bénéfices des directives.

Principales conclusions

Les principales conclusions relatives aux différents critères d'évaluation (efficacité, efficience, pertinence, cohérence et valeur ajoutée de l'UE) basées sur l'analyse des informations recueillies sont présentées ci-dessous. Des conclusions plus détaillées relatives à chaque question d'évaluation sont présentées dans les sections 5 à 9 de l'étude.

Efficacité

Ce critère propose d'examiner en quelle mesure les objectifs des directives « Nature » ont été atteints ainsi que tous les différents facteurs ayant contribué aux progrès effectués pour y parvenir ou les ayant ralentis.

Des progrès considérables ont été effectués dans la mise en œuvre des mesures prescrites par les directives, particulièrement la composante terrestre du réseau Natura 2000, la protection juridique des sites Natura 2000 ainsi que la protection et l'usage durable des espèces. Les progrès dans la mise en œuvre de certaines autres mesures, telles que l'établissement du réseau Natura 2000 en mer, le développement de mesures de conservations des sites, incluant des plans d'aménagement si nécessaire, et la provision de financements adéquats ont été plus lents qu'attendu. Il y a peu de données concernant l'entreprise de mesures d'aménagement des paysages efficaces contribuant à soutenir la cohérence du réseau Natura 2000.

L'impact des mesures prises jusqu'à aujourd'hui ne suffit pas encore à atteindre les objectifs globaux des directives. Si 52% des espèces d'oiseaux sont en sécurité, 17% sont menacées et 15% sont en régression ou appauvries. Les espèces d'oiseaux communs présents en zone rurale, plus particulièrement sur les zones agricoles, sont les plus susceptibles de voir leur population décliner. Seuls 16% des habitats visés à l'annexe 1 montrent un statut de conservation favorable, tandis que la plupart des autres un statut seulement défavorable-inadéquat (47%) ou défavorable-médiocre (30%).

Parmi les espèces autres que les oiseaux visées à l'annexe II, 23% bénéficient d'un statut de conservation favorables, les autres étant soumises à un statut défavorable-inadéquat (42%) ou défavorable-médiocre (18%). Néanmoins, des données solides prouvent que, lorsqu'elles sont correctement mises en œuvre, les directives ont permis de réduire les pressions exercées sur la biodiversité, de ralentir le déclin des espèces et, avec le temps, de rétablir des habitats et des espèces.

Les directives sont indubitablement le composant le plus important du Cadre européen de protection de la nature et contribuent de manière essentielle au grand objectif européen d'enrayer l'érosion de la biodiversité d'ici à 2020. Les directives soutiennent tous les objectifs nationaux de la Stratégie de l'UE en matière de biodiversité, en particulier les services de rétablissement des écosystèmes prévus sous l'Objectif 2. Les directives ne peuvent cependant pas atteindre les objectifs de l'UE en matière de biodiversité sans action complémentaires, au niveau de l'UE et au niveau national, en particulier concernant d'autres domaines politiques essentiels que sont par exemple l'agriculture ou la pêche.

La disponibilité de financements est probablement l'élément qui a eu le plus d'influence dans la mise en œuvre des directives. L'augmentation des possibilités de financement,

engendrée par les directives, est un élément important de leur mise en œuvre, bien que de fortes pénuries en limitent l'avancée, particulièrement l'instauration de mesures de gestion et de conservation. Le degré de soutien politique accordé aux directives, les connaissances en matière de biodiversité, les effets inattendus de certaines mesures incitatives ou de subsides dans d'autres domaines politiques et les capacités des autorités compétentes comptent parmi les autres facteurs importants à prendre en compte.

Les directives ont provoqué des changements inattendus, non-requis par la législation, mais qui ont eu un impact sur son efficacité. Une sensibilisation du public et une participation des acteurs accrues constituent un changement positif clé, au-delà de toute attente. Si les opérateurs socio-économiques n'ont pas été impliqués de manière constante dans tous les Etats membres, des exemples positifs permettent de souligner les opportunités découlant des directives. Si quelques conflits locaux ont émergé, ils ont incité à une gestion plus intégrée de la nature et des activités socio-économiques, générant de nouvelles opportunités commerciales et de nouvelles approches en matière de gouvernance ayant le potentiel d'être développées plus avant. Le grand nombre de cas soumis aux tribunaux nationaux et à la Cour européenne a généré un plus grand respect des exigences de conformité et de certitude envers les prescriptions de la directive, mais aussi quelques réticences, du côté du système de prise de décision au niveau national et local, vis-à-vis de la délivrance de permis pour certains projets et activités socio-économiques, malgré les très utiles orientations sectorielles fournies par la Commission.

Efficience

Le critère d'efficience prend essentiellement en compte la relation entre les coûts de mise en œuvre des directives et les résultats ou bénéfices obtenus. Il s'agit d'observer en quelle mesure ces coûts sont raisonnables vis-à-vis des objectifs poursuivis et des résultats obtenus (bénéfices). Les « coûts » et les « bénéfices » peuvent tous deux être monétaires et/ou non monétaires.

La mise en œuvre des directives engendre des coûts significatifs :

- Les coûts directs liés à la détermination, à la protection et à la gestion des sites Natura 2000 ont été estimé par les Etats membres à 5,8 milliards d'euros par an à travers l'UE.
- Des coûts d'opportunité font surface lorsque la protection des sites et des espèces engendre des restrictions à des évolutions souhaitables et à des changements d'affectation des terres et de gestion des terres. Ces restrictions affectent une faible proportion des évolutions proposées au niveau européen mais préoccupent plusieurs entreprises, particulièrement là où aucune compensation n'est versée.
- Les coûts des dommages causés par certaines espèces protégées (par exemple les grands carnivores) et les compensations associées peuvent être significatifs au niveau local.
- Les charges administratives liées l'observation des règles énoncées par les directives en matière de protection des sites et des espèces sont également significatives. Les vues des acteurs concernés divergent au sujet de l'existence ou non d'importantes charges inutiles, mais tous sont d'avis que ces charges résultent souvent d'une mise en œuvre inefficiente des provisions des directives au niveau national, régional et local.

Il existe de nombreux exemples de mise en œuvre efficace en termes de coûts, notamment des consultations et un engagement effectif des acteurs concernés, l'appel à des logique de partenariat, de planification stratégique et aux orientations, ainsi qu'à des collectes et partages d'informations coordonnés. Le secteur portuaire ou des énergies

renouvelables ont beaucoup d'expérience dans le développement de méthodes de travail sur les directives efficaces en termes de coûts.

La mise en œuvre des directives procure également des bénéfices substantiels :

- La protection et l'amélioration des statuts des habitats et des espèces constituent les bénéfices essentiels de la mise en œuvre des directives.
- La protection des sites et des espèces contribue à la sauvegarde et à l'amélioration des prestations des services écosystémiques, estimées à 200 à 300 milliards d'euros par an pour Natura 2000.
- La mise en œuvre des directives apporte des bénéfices aux économies locales, par la création d'emploi et le tourisme. Les sites Natura 2000 engendrent des recettes annuelles liées au tourisme et aux loisirs s'élevant de 50 à 85 milliards d'euros.
- Des études montrent que les bénéfices engendrés par les directives excèdent les coûts au niveau européen, national et local, bien que ce ne soit pas nécessairement le cas de chaque site individuellement.
- Ne pas mettre en œuvre les directives mènerait à une diminution progressive des bénéfices procurés aux sites et aux espèces par les directives, y compris une perte de services écosystémiques. Une réduction de 1% de ces services engendrerait une perte de 2 à 3 milliards d'euros par an – une perte qui s'accumulerait au fil des années.

Un financement accru en faveur de la conservation de la nature dans l'UE découle des directives, accroissant de fait les financements dédiés à la conservation des habitats et des espèces qui auraient sans cela été bien moins élevés. Il subsiste toutefois un manque substantiel de financements à travers l'Europe, qui demeure une barrière majeure à la réalisation des objectifs des directives.

Malgré un renforcement des activités de recherche et de contrôle, des manques de connaissance importants ont été problématiques lors de la mise en œuvre des directives, causant retards et charges supplémentaires. Les lacunes dans des domaines de connaissance clés portent sur les données nécessaires à l'identification des Zones de protection spéciale (ZPS) marine et des Zones spéciales de conservation (ZSC) marines, l'impact potentiel de certaines activités humaines sur certaines espèces ainsi que la localisation des espèces protégées et des habitats de l'UE, en-dehors des sites Natura 2000.

Pertinence

Le critère de pertinence propose d'étudier en quelle mesure les objectifs des directives « Nature » sont en harmonie avec les besoins des espèces et des habitats entrant en compte dans la politique de conservation de l'UE. Il s'agit d'observer si les objectifs fixés par la législation sont toujours nécessaires et appropriés.

Les directives constituent un cadre visant à traiter les problèmes clés auxquels les habitats et les espèces sont confrontés. L'approche des directives n'est pas spécifiquement orientée sur les problèmes rencontrés et requiert des Etats membres qu'ils exercent leur pouvoir discrétionnaire dans le but d'identifier les mesures les plus appropriées pour parer aux effets négatifs sur les habitats et les espèces peu importe leurs causes. Les pressions le plus souvent exercées sur les habitats et les espèces européens protégés sont liées à la perte, la fragmentation et la dégradation des habitats résultant de l'exploitation forestière, de la chasse, de la pêche, de la construction et des industries d'extraction et de développement énergétique. Les espèces exotiques envahissantes constituent une source de pression supplémentaire, tandis que le changement climatique représente une menace émergente. Allier les directives à des politiques cohérentes dans d'autres sec-

teurs devient alors une nécessité, de par la nature et la portée de certaines de ces pressions.

Les acteurs concernés conviennent généralement du fait que les objectifs et l'approche globale des directives demeurent valides et adaptés. Certains de ces acteurs sont d'avis que les annexes devraient davantage être mises à jour afin de refléter les améliorations du statut de conservation des espèces, des lacunes concernant la couverture des espèces menacées et des changements taxinomiques. Les potentiels bénéfices à tirer de nouveaux amendements du point de vue de la conservation de la nature, sont néanmoins incertains et seraient probablement contrebalancés par des retards dans la mise en œuvre des textes du fait d'incertitudes quant à la nécessité de nouveaux sites Natura 2000 et de changements du périmètre, des objectifs et de la gestion de ces sites, ainsi que quant aux exigences de protection des espèces.

Des contributions positives en faveur du développement durable dans son ensemble, ainsi que des objectifs spécifiques qui y sont associés tels que la gestion des ressources ou des bénéfices sanitaires et sociaux, résultent des directives. Ces textes ont été prévus pour permettre le développement économique partout où celui-ci est compatible avec leurs objectifs en matière de biodiversité. Bien que les directives n'accordent la primauté à ces objectifs dans certains processus décisionnels, rien ne prouve que cela ne porte atteinte au développement durable dans son ensemble. Il pourrait cependant être facilité par un approfondissement des connaissances relatives à la localisation des habitats et espèces européens protégés, permettant dès lors l'identification des conflits qui pourraient potentiellement émerger en amont de la phase de planification du cycle de développement et l'amélioration des Procédures appropriées d'évaluation (comme détaillé plus avant ci-dessous).

L'importance de la protection de la nature fait l'objet d'un solide consensus parmi les Européens. Selon l'enquête Eurobaromètre 2015 sur les « Attitudes des Européens vis-à-vis de la biodiversité », une très large majorité d'Européens (80%) considèrent le déclin de certaines espèces et leur possible extinction comme un problème sérieux en Europe. La plupart des sondés (89%) estiment que les zones de protection de la nature devraient être étendues, et quasiment autant d'entre eux (88%) sont en faveur d'un renforcement des règles de protection de la nature. Ces résultats viennent renforcer ceux de l'enquête Eurobaromètre 2014 (sur les « Attitudes des Européens vis-à-vis de la biodiversité »), montrant qu'une majorité d'Européens (77%) considéraient que la législation européenne en matière d'environnement comme nécessaire à la protection de la nature dans leur pays. L'intérêt des citoyens transparaît également à travers le taux de participation sans précédent à la consultation publique organisée pour cette évaluation (plus de 550 mille réponses). Si cette consultation publique ne représente pas un sondage valide en tant que tel, elle expose la largeur de l'éventail d'opinions liées à différents intérêts et exprime la conviction d'une écrasante majorité des répondants (520 mille) que les directives sont importantes pour la conservation de la nature.

Cohérence

Evaluer la cohérence d'une législation, d'une politique et d'une stratégie consiste à observer dans quelle mesure elles sont logiques et constantes, à la fois d'un point de vue interne (notamment au sein d'une même directive), entre elles (comme entre deux directives) et vis-à-vis d'une autre législation ou de politiques pertinentes.

Les directives « Oiseaux » et « Habitats » sont globalement cohérentes à la fois d'un point de vue interne et entre elles, malgré quelques différences dans la portée et la formulation des mesures spécifiques et opérationnelles. Le régime de protection des ZPS a été harmonisé avec celui des ZSC dans le cadre de l'article 7 de la directive « Habitats ». Quelques différences entre les deux directives, telles que concernant les procédures de désignation et les échéances, la déclassification des sites ou les procédures d'amendement des annexes, n'ont pas généré d'incohérences dans la pratique courante.

Les incohérences ayant émergé d'approches ou de formulations différentes, comme par exemple les conditions liées à l'attribution de dérogations à la protection d'espèces, ont été réglées par le biais d'arrêts de la Cour de Justice de l'Union européenne (CJUE) ou d'orientations émises par la Commission au fil des années.

Les directives « Nature » sont appliquées conjointement à d'autres législations et politiques européennes en matière d'environnement, dont les plus importantes comptent l'Evaluation de l'Impact Environnemental (EIE), l'Evaluation environnementale Stratégique et les directives sur la responsabilité environnementale, ainsi que la législation et les politiques dans le domaine de l'eau, de la mer et du changement climatique. Les objectifs de ces instruments sont cohérents avec les directives « Natures », bien que, dans la pratique, une mise en œuvre coordonnée (notamment le suivi, la collecte et le partage d'informations) soit nécessaire afin de garantir les meilleurs résultats et de réduire les coûts qui y sont associés.

De nombreuses opportunités de financement européen sont disponibles au profit de la biodiversité et de Natura 2000, à travers les divers instruments. Les données sont partagées concernant la mesure dans laquelle la nature et la biodiversité sont intégrées avec succès par les différents programmes de financement européens, en particulier la Politique Agricole commune (PAC) et la politique de cohésion, puisqu'elles dépendent des priorités fixées au niveau national et régional ainsi que de la capacité des acteurs concernés à absorber les fonds.

La période de programmation 2014-2020 de la PAC est potentiellement complémentaire avec les directives « Nature » car quelques mesures incitatives de la PAC sont associées au respect de conditions environnementales (notamment la conditionnalité), susceptible d'être bénéfiques à la biodiversité et limiter les pratiques néfastes malgré leur large dépendance des choix des Etats membres dans la mise en œuvre des directives. Quelques impacts négatifs ont émergé de la PAC par le passé ; c'est pourquoi les nouvelles règles et conditions appliqués aux Programmes de développement rural de la PAC ont été prévu pour éviter ces problèmes dans le futur. Il est néanmoins encore trop tôt pour juger de la portée de ces mesures. Les programmes agro-climato-environnementaux constituent les principaux moyens de soutenir des pratiques de gestion bénéfiques à la biodiversité. Sans un tel soutien, le statut de conservation des habitats et espèces en milieu agricole serait moins avancé qu'il ne l'est aujourd'hui. Cependant, la PAC devrait contribuer encore davantage aux objectifs des directives « Nature », plus particulièrement si les financements dédiés aux programmes agro-climato-environnementaux venaient à augmenter et étaient conçus de manière plus efficace et ciblée sur les priorités liées à la biodiversité par les Etats membres.

En ce qui concerne la pêche, le cadre juridique émis par la réforme de la Politique commune de la pêche (PCP) de 2013 est considéré comme cohérent avec les directives, bien que ce cadre doive encore livrer des résultats sur le terrain. Les incohérences remarquées sous la précédente PCP, qui faisait office de barrière aux Etats membres pour l'adoption de mesures de conservation et de restriction de certaines pratiques en matière de pêche, ont été résolues par la nouvelle PCP. Celle-ci, conjointement aux progrès actuels effectués dans la désignation de sites, contribue à accroître sa cohérence avec les directives « Nature ». L'instauration de mesures de gestion et de conservation sur les sites marins demeure un défi, du fait du manque de données scientifiques, d'approches incohérentes entre les Etats membres et de conflits d'intérêts.

D'autres secteurs d'activité économique peuvent impacter les habitats et les espèces. Des impacts négatifs peuvent apparaître du fait de la pression en faveur d'une hausse de la part des énergies renouvelables dans le secteur de l'énergie, du fait des mesures d'incitations à la construction de routes, chemins de fer, de voies de navigation, de ports et d'autres infrastructures de transport, ou encore du fait d'activités notamment minières dans le cadre du soutien à la stratégie européenne d'accès aux matières premières. Il existe de bons exemples de moyens de prévenir/réduire de tels impacts ou de protéger la nature dans les documents d'orientation de la Commission and parmi les initiatives prises par différents acteurs. Toutefois, quelques acteurs du milieu de l'industrie estiment

que les documents d'orientation de la Commission ne sont pas suffisamment distribués et utilisés.

Les données indiquant un impact des directives sur le marché intérieur de l'UE sont limitées. L'approche commune fixée par les directives est considérée comme essentielle par les ONG afin d'éviter une « course vers le fond » dans le domaine des normes européennes, tout en assurant la sécurité juridique aux entreprises. Néanmoins, certaines entreprises ont souligné que les différentes approches quant à la mise en œuvre de ces directives entre les Etats membres avaient eu un impact négatif sur les conditions de concurrence équitable prévues.

Les directives sont généralement considérées comme cohérentes au vu des engagements internationaux dans le domaine de la nature et de la biodiversité. Seules quelques incohérences mineures ont été identifiées, en lien avec la protection des espèces pour la plupart, et les directives constituent des instruments essentiels pour permettre à l'UE de remplir ses engagements internationaux.

Valeur ajoutée de l'UE

Evaluer la valeur ajoutée de l'UE des directives consiste à évaluer les bénéfices/changements résultant de la mise en œuvre des directives "Nature", qui viennent s'ajouter aux bénéfices qui auraient résulté d'actions entreprises au niveau uniquement au niveau national et/ou régional. Cette évaluation vise également à déterminer en quelle mesure une action de la part de l'UE est toujours nécessaire afin d'atteindre les objectifs fixés par la législation.

Le caractère transnational de la nature justifie d'entreprendre une action au niveau européen, plus efficace pour atteindre les objectifs de conservation fixés par les directives. Les données recueillies montrent que les directives ont introduit des changements innovants, assurant une valeur ajoutée aux résultats qui auraient été atteints sans l'intervention de la législation européenne.

Une augmentation substantielle de la portée des zones protégées découle de l''instauration de Natura 2000 en tant que réseau cohérent de sites basé sur des données scientifiques et prenant en compte les "régions biogéographiques" et le concept d'Etat de conservation favorable. Les directives "Nature" ont introduit une approche flexible de la protection et de la gestion des sites, permettant le maintien d'activités socio-économiques, si tant est qu'elles puissent être exercées en harmonie avec les objectifs de biodiversité. La valeur ajoutée maximale potentielle du réseau de sites protégés Natura 2000 visé par les directives a néanmoins été affecté par des retards dans le processus de sélection et de désignation des sites et d'adoption des mesures de conservation nécessaires, qui ont à leur tour complexifié le développement d'approches intégrées. Les acteurs concernés du secteur privé se sont dit préoccupés par les défis posés par la nécessité de tenir compte des facteurs socio-économiques et appellent à davantage d'orientations de la part de l'UE.

Les normes transnationales de protections des espèces formulées par les directives ont conduit à un contrôle des pratiques de chasse illégales et ont permis d'inverser le processus de déclin des espèces. Les données provenant de pays hors UE montrent que de tels niveau de protection seraient probablement impossibles à mettre en place si les Etats membres étaient réduits à agir individuellement, sans s'appuyer sur les exigences des directives.

Les directives ont également établi une harmonisation des exigences et normes de protection, évitant ainsi le développement, à travers l'Europe, d'un patchwork de régulations et exigences diverses qui interfèreraient avec le bon fonctionnement du marché intérieur.

Les directives présentent une valeur ajoutée en assurant la disponibilité d'une plus grande quantité d'informations, une prise de conscience publique accrue, une plus grande participation des acteurs concernés et un usage plus important de fonds publics

au profit de la biodiversité que cela aurait été le cas si les Etats membres avaient agi par le biais de mesures nationales propres à chaque pays. Toutefois, les progrès varient selon les choix et les approches adoptées par les Etats quant à la mise en œuvre des directives et demeurent dépendants du soutien apporté au niveau européen.

En somme, la valeur ajoutée de l'UE des directives est liée à l'efficacité et à l'efficience des directives telles qu'attendues. Des retards dans leur mise en œuvre, un manque d'intégration ou de financements limitent le potentiel maximal de la valeur ajoutée que pourraient apporter les directives européennes. L'action européenne en faveur de la conservation et de la restauration de la biodiversité demeure une nécessité et constitue même une urgence, étant donné le déclin continu des habitats et des espèces au sein de l'UE. Les données collectées lors de cette étude indiquent la nécessité pour l'UE d'entreprendre des actions de renforcement de l'intégration politique (notamment la PAC ou la PEP) et de se pencher sur la question de l'impact potentiellement contre-productif des activités sectorielles. Les informations et opinions recueillies montrent que sans l'action et la pression émanant du niveau européen, la mise en œuvre des directives "Nature" aurait été plus faible. Les résultats positifs en matière de conservation de la nature justifient l'entreprise de davantage d'actions par l'UE.

Conclusion générale

Le bilan des données collectées prouve que les directives sont adaptées à leurs objectifs et permettent de les atteindre, et procurent une réelle valeur ajoutée de l'UE. Les directives sont à l'origine de nombreux bénéfices pour la conservation de la nature et pour le développement durable en général. Elles proposent un cadre équilibré et applicable, permettant de traiter avec les divers intérêts et acteurs en jeu tout en respectant les objectifs de conservation de la nature. Les coûts de mise en œuvre sont globalement raisonnables et contrebalancés par les bénéfices que les directives apportent, bien qu'elles aient en effet davantage d'impact sur certains acteurs que sur les autres. Les évaluations prouvent que les problèmes liés au rythme et à la portée des progrès en vue d'atteindre les objectifs des directives ne sont pas du fait de la législation elle-même mais émanent de sa mise en œuvre. Les directives ont évolué au fil du temps (et notamment de l'adhésion de nouveaux Etats membres) et demeurent pertinentes. Aucune suggestion de changement majeure n'a émergé des consultations menées dans le cadre de cette étude. Les données recueillies suggérant une mise à jour des annexes (afin d'améliorer la couverture des espèces, de s'aligner sur les annexes des traités internationaux ou de prendre en compte les changements survenus dans les statuts de conservation) constituent une exception possible. Cependant, le bilan des informations collectées suggère qu'une mise à jour à ce stade seraient source d'incertitudes et seraient contre-productives à la fois en termes économiques que de conservation de la nature.

En dépit de conclusions globalement positives sur l'adaptation des directives à leurs objectifs, plusieurs défis significatifs liés à leur mise en œuvre ont émergé de cette étude. Ces défis ont un impact non seulement sur la poursuite des objectifs des directives, mais aussi sur les coûts et charges assumés par les autorités et les acteurs concernés, ainsi que sur la capacité d'atteindre simultanément les objectifs des politiques européennes, en particulier dans les secteurs économiques clés. Si l'étendue de certains problèmes a réduit au fil du temps et de l'expérience acquise, d'autres problèmes requièrent encore des améliorations liées notamment au besoin de financements accrus, d'une meilleure gestion de planification, d'une meilleure et plus abondante quantité d'informations, de l'émission de davantage d'orientations, d'intégration et de regroupement des politiques européennes et d'une prise de conscience et d'un engagement plus importants de la part des acteurs concernés. Ces mesures devront refléter les nombreux exemples de mise en œuvre efficace en termes de coûts ayant émergé au fil des années et démontrant que, lorsqu'elles sont convenablement mises en œuvre, les directives constituent un cadre de protection efficient.

Acronyms and abbreviations

(*Does not require definition on first use)

AA	Appropriate Assessment
CAP	Common Agricultural Policy
CBD	Convention on Biological Diversity
CEF	Connecting Europe Facility
CFP	Common Fisheries Policy
CJEU	(Court of Justice of the EU) European Court of Justice
EIA	Environmental Impact Assessment*
EEA	European Environment Agency
ELD	Environmental Liability Directive 2004/35/EC
ETC-BD	European Topic Centre on Biological Diversity
EU	European Union*
ERDF	European Regional Development Fund
EFF	European Fisheries Fund
FCS	Favourable Conservation Status
FD	Floods Directive 2007/60/EC
MPAs	Marine Protected Areas
MSFD	Marine Strategy Framework Directive 2008/56/EC*
NEC	National Emission Ceilings Directive 2001/81/EC
NGO	Non-Governmental Organisation*
NEEI	Non-Energy Extractive Industries
PAFs	Prioritised Action Frameworks
PCIs	Projects of Common Interest
RDP	Rural Development Programme
REFIT	Regulatory Fitness and Performance Programme
RGI	Renewables Grid Initiative
SACs	Special Areas of Conservation*
SEA	Strategic Environmental Assessment*
SCIs	Sites of Community Importance*
SMEs	Small and Medium-sized Enterprises
SPAs	Special Protection Areas*
TEN-E	Trans-European Networks for energy
TEN-T	Trans-European Networks for transport
TFEU	Treaty on the Functioning of the European Union
WFD	Water Framework Directive 2000/60/EC*
WWF	World Wide Fund for Nature

1 Introduction

1.1 Purpose of the evaluation

This evaluation study has been commissioned by DG Environment and focuses on the following two pieces of EU legislation:

- **The Birds Directive (2009/147/EC)** is the codified version of Directive 79/409/EEC as amended. This Directive provides a legal framework for the conservation of all wild bird species naturally occurring in the EU.
- **The Habitats Directive (92/43/EEC)** addresses the protection of species and habitat types of EU conservation concern.

These are the two main pieces of EU nature legislation, which provide a common framework setting the standard for nature protection across the Member States. They are collectively referred to as the 'Nature Directives'.

This report presents the results of a comprehensive evaluation to assess the performance of the Nature Directives against the following criteria: effectiveness, efficiency, relevance, coherence and EU added value. This evaluation is an evidence-based judgement which supports the Fitness Check of the Nature Directives carried out by the Commission. This retrospective exercise considers what has worked well or poorly, and compares actual performance to initial expectations. The Fitness Check is one of many activities undertaken as part of the Commission's Regulatory Fitness and Performance Programme (REFIT). The REFIT programme is a continuous improvement process to make EU legislative activities 'lighter, simpler and less costly'. It looks across the whole policy cycle – from the design of a piece of legislation to its implementation, enforcement, evaluation and, where justified, revision.

Following the Fitness Check mandate which is published on the Commission's website for the Fitness Check this evaluation study includes, in particular, an assessment of[7]:

- Implementation and integration successes and problems.
- The costs of implementation and non-implementation of the legislation.
- The administrative burden of implementation, and the opportunities to reduce it without compromising the integrity of the purpose of the Directives.
- The implementation status in different Member States.
- The views of key stakeholder groups.

1.2 Scope of the evaluation

The scope of the evaluation is detailed in the Fitness Check mandate and this has guided the interpretation of each of the evaluation questions (see section 4.1 for a more detailed explanation).

The evaluation covers the period of time from the adoption of each Directive - the Birds Directive in 1979 and the Habitats Directive in 1992 – to the present day. It is retrospective, looking back at what has happened in the intervening years since the adoption of the Directives. Its results, however, will be used to progress forward, to determine whether or not the legislation is fit for purpose, and to provide an informed basis for future decisions on EU nature legislation and policy. Consequently, the evaluation considers recent and upcoming developments (e.g. the 2014 revised EIA Directive) as these will

[7] The 'Fitness Check mandate for nature legislation' can found at: http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/Mandate%20for%20Nature%20Legislation.pdf accessed 22.12.15

affect the practical relevance of any conclusions. The study does not, however, provide recommendations or suggestions for future action.

Geographically, the focus of the evaluation is the implementation of the Directives in the EU. While the evaluation covers implementation in all Member States, the information available differs by Member State, making it impossible to compare complete data sets on all issues and questions covered by the evaluation. The global nature of biodiversity and the framework of important international commitments within which the Directives operate, as well as their contribution to the EU Biodiversity Strategy, are also considered, where relevant.

1.3 Structure of this report

The report is structured as follows:

- **Section 2: Background to the Directives.** This section details the purpose of the Directives, their history and evolution, and how they are intended to work in practice. It also includes the intervention logic for the Directives, setting the basis for evaluating their performance.
- **Section 3: State of Play.** This section summarises the current situation with respect to implementation of the Directives.
- **Section 4: Methodology.** This section outlines the methodological approach used to collect, track and analyse data, including modes of extensive engagement with stakeholders. It also discusses the limitations of the research.
- **Sections 5 - 9: Evaluation and analysis of effectiveness, efficiency, relevance, coherence and EU added value.** These sections summarise the analysis for each of the evaluation questions, including details on the interpretation of the question and the main sources of information used to determine the response.
- **Section 10: Conclusions.** This section brings together the conclusions for each evaluation question.

2 Background to the Directives

2.1 Purpose of the Directives

The two main pieces of EU nature legislation – the 1979 Directive on the conservation of wild birds (Birds Directive) and the 1992 Directive on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) - provide a common EU framework that sets the standard for nature protection across the Member States.

The aim of the Nature Directives is to contribute to ensuring biodiversity through the conservation of natural habitats and wild fauna and flora in the EU. More specifically, the overall objective of the Habitats Directive is to maintain or restore habitats and species of EU conservation concern to Favourable Conservation Status, (FCS), while the Birds Directive aims to achieve good conservation status for all wild bird species naturally occurring in the EU territory of the Member States. Both Directives are similarly designed and structured, requiring not only the conservation of species but also their habitats, through a combination of site and species protection measures, supported by monitoring and research measures. One of the key ways to achieve the objectives has been the establishment of Natura 2000 – a network of areas of high nature value across the EU.

The Birds and Habitats Directives are considered by the Commission to be the cornerstone of the EU's biodiversity policy. They are seen as making an important contribution to the achievement of the EU 2020 target to halt and reverse the loss of biodiversity endorsed by Heads of State and Government under the EU Biodiversity Strategy as well as the long-term goal for 2050[8]. The Commission has adopted an ambitious Biodiversity Strategy to achieve this objective, comprising six targets[9]. Target 1 of this Strategy is focused on 'Full implementation of EU nature legislation to protect biodiversity', and it requires a significant improvement in conservation status.

The implementation of EU nature legislation is intended to contribute significantly to other targets of the biodiversity strategy, including Green infrastructure and restoration under Target 2, as well as integration with agriculture and forestry under Target 3, and sustainable management of fisheries under Target 4.

The Directives are also intended to give effect to EU commitments under international conventions and agreements, such as the Convention on Biological Diversity (CBD), the Bern Convention on European Wildlife, the Convention on Migratory Species and the African Eurasian Waterbird Agreement.

2.2 History and evolution

The concept of protected areas has existed in Europe for several thousand years, with the first formalised protected areas emerging during the feudal era to facilitate the hunting interests of the nobility. Later, the creation of protected areas was driven by the protection of individual resources, such as timber, or the protection of landscape for aesthetic reasons. The concept of the national park was established in the 19th century in North America, where large parcels of undeveloped land were protected from human exploitation or habitation. Most of the European national parks set up just before, or shortly af-

[8] European Commission, '*The EU Biodiversity Strategy to 2020, European Union'*, available at: http://ec.europa.eu/environment/nature/info/pubs/docs/brochures/2020%20Biod%20brochure%20final%20lowres.pdf, accessed 17.02.16

[9] European Commission, DG Environment, *'EU Biodiversity Strategy to 2020'*, available at: http://ec.europa.eu/environment/pubs/pdf/factsheets/biodiversity_2020/2020%20Biodiversity%20Factsheet_EN.pdf

ter, the First World War were consciously following the US model of national parks. However, the

European national parks were typically smaller than those in the United States (EEA. 2012). Widespread acceptance of the concept of protecting areas based on scientific assessments of their value as habitats, or to support the conservation of rare or endangered species, is relatively recent, however, and is the basis for the adoption of the Birds Directive in 1979. The Bern Convention on the Conservation of European Wildlife and Natural Habitats was agreed and opened for signature in the same year, to cover not only birds but also other species and their habitats.

At the time of adoption of the Birds Directive, European-level environmental legislation was relatively rare, and environmental policy was not yet legally recognised as a Community competence. The adoption of the Birds Directive, which was legally based on Article 100 of the EEC Treaty referring to the establishment of the internal market, required a unanimous vote in the Council.

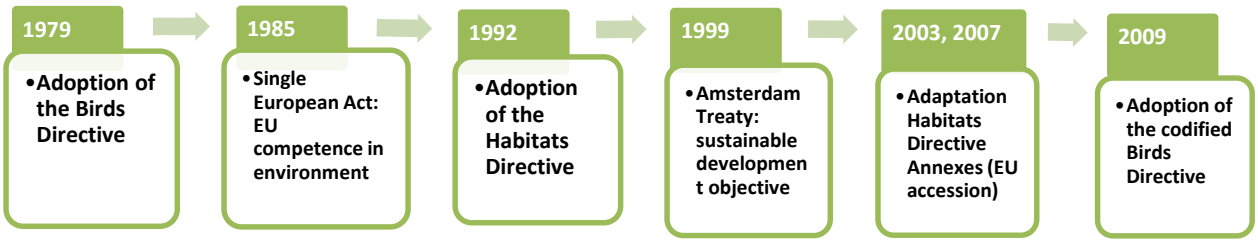
The Birds Directive was adopted in response to alarming information about the decline of birds, in particular migratory birds, and the status of conservation of wetlands in the EU, recognising their critical role as a habitat for birds. The Directive included a provision requiring Member States to take the necessary measures to preserve, maintain or re-establish a sufficient diversity and area of habitats for all birds by the creation of protected areas, and requiring Member States to pay particular attention to the protection of wetlands, particularly wetlands of international importance. However, progress on site designation was slow and the scope of the Directive was relatively limited in comparison to the Bern Convention. Decision makers, particularly at the European Parliament, recognised the need for a complementary piece of legislation that would create a more systematic structure for the establishment of protected areas and would ensure implementation of the Bern Convention, with a broader scope including non-bird species and their habitats. The Habitats Directive was thus proposed by the European Commission in 1988, directly after the Single European Act had extended the Community's competence to environmental policy.

The UN Conference on the Environment and Development held in Rio de Janeiro in 1992 generated the right mood for ambitious pieces of legislation such as the Framework Convention on Climate Change, the Convention on Biological Diversity (CBD) and, at EU level, the Habitats Directive, which was finally adopted in 1992, after years of discussion between Member States at Council level. It was based on the EC Treaty (TEC) provisions on environmental policy.

The Habitats Directive's innovative character can be best understood within its historical context. The Directive is anchored within the general objective of sustainable development, to which it expressly refers in the preamble as part of its aim to promote the maintenance of biodiversity while taking account of economic, social, cultural and regional requirements. This predates the 1999 Treaty of Amsterdam requirement to integrate environmental protection into all EU sectoral policies with a view to promoting sustainable development. The preamble of the Birds Directive 2009/147/EC, adopted to codify substantial amendments to the 1979 Directive, also refers to the sustainable development objective.

The Nature Directives established a flexible mechanism that would enable them to be adapted over time, for example their Annexes were amended to reflect the biodiversity of Member States joining the EU. While the Habitats Directive was amended in 1997 for a technical adaptation to accommodate the requirements from the recent acceding Member States, the Birds Directive went through a codification procedure leading to the adoption of Directive 2009/147/EC. The annexes were further amended by the Environment Chapter of the 2003 Treaty of Accession of 10 new Member States, and again in 2007 when two further Member States joined the EU.

Figure 1 Key milestones in the evolution of EU nature legislation



2.3 Intervention logic

The model of intervention logic presented in Table 1 below, defines how the Nature Directives were designed to work at the time of their adoption. It describes their general, specific and operational objectives, considering the activities or inputs that would be required to achieve these objectives, and linking them to the outputs, results and impacts that should be achieved through the Directives' implementation. Table 1 presents a simplification of the Nature Directives logic designed to capture the main objectives and intended effects of the Directives, rather than a detailed map of all of the activities undertaken to implement them and should be considered an illustrative, rather than comprehensive, overview. The text in section 2.3.1 following Table 1, and including Table 2, details how the objectives link and work together, providing the basis for the evaluation.

The intervention logic model was defined in line with the Commission's approach to Better Regulation as described in the Better Regulation guidelines and toolbox. By first understanding how the legislation is *supposed* to work, the study can more clearly evaluate what has happened in practice. However, neither the adoption of the Habitats Directive nor the Birds Directive was preceded by an impact assessment defining the results expected to be achieved in comparison to an existing situation solely based on individual national laws. Therefore, it has been necessary to define the expected results in relation to the objectives stated in the Directives.

Overall, the Directives aim to maintain and restore biodiversity in the EU and to address the threats to habitats and species (needs). While the Directives' response to specific circumstances and threats might evolve (see section 7.1), they are not in themselves problem-specific but, rather, set up a system to achieve conservation objectives irrespective of the cause of biodiversity loss or decline.

The Directives are intended to work on the basis of a hierarchy of objectives – general, specific and operational – with associated activities to which financial and human resources are allocated (see Table 1 below). The intervention logic presents the general objectives and the expected impacts from the implementation of the Directives. The specific objectives determine the results expected to be achieved by applying the measures designed according to the operational objectives which, in turn, are expected to lead to specific outputs. The logic of the legislation requires associated activities and financial and human resources to be allocated for the achievement of these outputs.

On the left hand side of Table 1, the objectives specified by the Directives are detailed linking the general objectives with the more specific and operational objectives and the specific activities or inputs. On the right hand side, the table presents the expected outputs, results and impacts that the Directives should achieve.

The evaluation study assesses the changes over time compared to the three tiers of expected objectives (as described in the intervention logic. The expected outputs measure the immediate effect of the activities undertaken, and include, for example, the area of land designated as Natura 2000 or the number of sites with management plans. A more extensive list of outputs linked to the operational objectives of the Nature Directives is

included in Table 1 below. These outputs are designed to achieve certain conservation results, such as the conservation and management of Natura 2000 sites and the protection of species. Finally, these results should contribute to longer term impacts at the EU level, such as the maintenance or restoration of Favourable Conservation Status and, thus, the overall conservation aim (as per Table 1).

This section presents a detail description of the intervention logic of the Nature Directives which is the basis for the analysis and evaluation of the extent to which the legislation remains fit for purpose. The full description of the evaluation framework and the linkages with the intervention logic are described in section 4.1 of this study.

Table 1 Nature Directives' intervention logic scheme

Needs	• To address the loss/decline of species and habitats • Conservation and sustainable use of species and resources			
	Birds Directive	Habitats Directive		
General Objectives ↓	• Maintain or adapt the population of wild bird species in the EU, taking account of socio-economic factors.	• Maintain or restore habitats and species at Favourable Conservation Status (FCS), taking into account socio-economic factors.	**Impacts** ↑	• Bird populations maintained or restored to appropriate levels. • Habitats and species of Community interest in FCS.
Specific Objectives ↓	• Preserve sufficient Special Protection Areas (SPAs) and protect habitats/birds inside and outside them. • Establish a general system of protection for all birds.	• Establish Natura 2000 – a coherent network of Special Areas of Conservation (SACs) and SPAs. • Ensure management and protection of Natura 2000 sites. • Establish strict systems of species protection.	**Results** ↑	• Natura 2000 network, including SPAs, is sufficient and coherent. • Natura 2000 sites are managed. • Natura 2000 sites are protected. • Species protection measures are established.
Operational Objectives ↓	• Designate SPAs and protect them from pollution, habitat deterioration and species disturbance. • Protect bird species by prohibiting killing, sale, deliberate disturbance and destruction of nests. • Regulate hunting of birds, including by prohibition during the breeding season. • Promote research. • Control non-native species in order to conserve local flora and fauna.	• Select, designate, adopt and fund conservation measures for SACs. • Protect SACs from habitat deterioration and species disturbance. • Regulate plans/projects to avoid negative impacts on Natura 2000 sites (Article 6). • Encourage the management of landscape features. • Establish strict systems of species protection. • Ensure hunting is compatible with Favourable Conservation Status of species. • Undertake research and promote education on habitats and species. • Ensure that introductions of non-native species do not prejudice native habitats and species.	**Outputs** ↑	• SPAs and SACs selected and designated with conservation measures and/or management plans. • SACs are protected from habitats deterioration and species disturbance. • Effective Appropriate Assessments (AA) avoid damage to Natura 2000 sites and, where required, compensate effectively. • Establish systems of species protection and sustainable use. • Effective enforcement. • Active national provisions to manage landscape features. • Ongoing research and education on biodiversity. • Species reintroductions achieved without harming existing native species.
Actions	• Implementing the legislation and monitoring progress by both the EU and Member States. • Enforcement of legislation by both the EU and Member States.			
Inputs	• Financial, human and institutional resources and knowledge allocated by EU and Member States to support the activities and operational objectives, including site and species management, enforcement, research, information sharing and education.			

2.3.1 Objectives and activities – how the Directives work in practice

This section explains how the Directives work in practice by presenting how the hierarchy of objectives inter-relate, linking the general objectives of the Directives to the specific objectives and, finally, with the operational objectives or measures that need to be carried out to achieve the general and specific objectives.

2.3.1.1 General objectives

The overall aim of the Directives is to maintain biodiversity and to halt and reverse loss of species and habitats by addressing their threats.

The general objective of the Birds Directive, as defined in Article 2, is to maintain the population of all species of naturally occurring birds in the wild in the EU at a level according to the ecological, scientific and cultural requirements, while taking account of economic and recreational requirements. The Habitats Directive develops this concept further and opens the scope to apply it to non-bird species of flora and fauna and their habitats (Article 2(1)), aiming 'to contribute towards ensuring biodiversity through the conservation of natural habitats and of species of wild fauna and flora in the European territory of the Member States to which the Treaty applies'. In order to achieve these aims, the Habitats Directive requires Member States to adopt measures to maintain or restore natural habitats and species of Community interest to Favourable Conservation Status (see Box below), taking into account economic, social and cultural requirements, as well as regional and local characteristics.

The Directives do not aim to ensure biodiversity on their own, but, rather, to contribute to conservation, together with other instruments (see sections 5.2 and 8). The conservation of biodiversity is a policy objective of the EU which goes beyond the Nature Directives (M. Clément, (Born et al, 2015))[10].

While the term 'Favourable Conservation Status' is not explicitly mentioned in the Birds Directive, it is implied in the requirements of Article 2 (European Commission, 2008a). This obligation is analogous to the objective to 'maintain or adapt the population of species at the level that corresponds to the ecological, scientific or cultural requirements while taking into account the economic and recreational requirements'. As SPAs are part of Natura 2000 - whose objective is to 'enable natural habitat types and the species' habitats concerned to be maintained or restored at a Favourable Conservation Status in their natural range (Article 3(1) of the Habitats Directive) – Favourable Conservation Status is also an objective of SPAs under the Birds Directive (Day, 2015).

Achieving a Favourable Conservation Status of these habitats and species means that habitats have sufficient area and quality, and species have a sufficient population size to ensure their survival into the medium to long term, along with favourable future prospects in the face of pressures and threats. The assessment of whether the habitats and species individually or overall are at Favourable Conservation Status is determined by Member States on the basis of the criteria defined by the Habitats Directive (see Box 1 below) and by establishing associated Favourable Reference Values for habitats and species of Community interest. The Commission and Member States have agreed standards for classifying the status of these habitats and species, and the Commission has also produced supplementary guidance to assist in the assessment process. There is no specific deadline established by the Directives to achieve Favourable Conservation Status.

[10] P.11.

Box 1 Definition of Favourable Conservation Status for habitats and species of Community interest, Habitats Directive

Under Article 1(e), the conservation status of a natural habitat will be taken as 'favourable' in the presence of all three of the following:

- Its natural range and areas it covers within that range are stable or increasing.
- The specific structure and functions which are necessary for its long-term maintenance exist, and are likely to continue to exist for the foreseeable future.
- The conservation status of its typical species is favourable, as defined in (i).

Under Article 1(i), the conservation status of a species will be taken as 'favourable' when all of the following are achieved:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats.
- The natural range of the species is neither being reduced, nor is likely to be reduced, in the foreseeable future.
- There is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

Source: Council Directive 92/43/1992, Article 1.

2.3.1.2 Specific objectives

The strategic objectives of the Nature Directives lead to more **specific objectives** which together comprise a comprehensive protection framework, including both site and species protection aspects.

2.3.1.2.1 Site protection

The site protection provisions of the Directives focus on the establishment, protection and management of a coherent network of sites (the Natura 2000 network) for selected species and habitats of particular European conservation concern. The establishment of the network is a requirement under Article 3 of the Habitats Directive, which states that 'a coherent European ecological network of special areas of conservation should be set up under the title Natura 2000'.

Article 3 of the Habitats Directive also states that the Natura 2000 network shall include the SPAs classified by the Member States pursuant to the Birds Directive. The designation of SPAs stems from Article 3 of the Birds Directive, under which 'Member States shall take requisite measures to preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Article 1' through, inter alia, the creation of protected areas.

The Natura 2000 network therefore comprises SACs hosting habitats (according to Annex I of the Habitats Directive) or species (Annex II of the Habitats Directive) of Community interest, and SPAs designated under the Birds Directive. Designated SPAs, therefore, become part of the Natura 2000 network.

The quality and number of sites designated should enable the achievement of Favourable Conservation Status across the habitats and species' natural range. Each Member State shall contribute to Natura 2000 in proportion to the representation of habitats and species of Community interest within their territory.

The Nature Directives require the establishment of the necessary conservation measures for each Natura 2000 site, including management plans where appropriate and the development of a protection system to halt and prevent damage to Natura 2000 sites.

The concept of the Natura 2000 network is anchored in the notion of network coherence referred to in both Directives. Article 3(1) of the Habitats Directive refers to a coherent network of SACs, and Article 4(3) of the Birds Directive states the need for SPAs to 'form a coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive applies'. However, neither of the Directives defines the meaning of 'network coherence'. Consequently, the practical implications for Member States of maintaining a coherent network have been the subject of some confusion and debate (Kettunen et al, 2007). At a minimum, it is clear that Natura 2000 should be more than a collection of isolated sites. A Commission study (2010) suggested that a coherent network should comprise sites that interact and complement each other to ensure that the network as a whole is adequate, representative, resilient and sufficiently connected (see Box 2 below).

Box 2 Proposed key components of a coherent Natura 2000 network

On the basis of a Commission workshop and a review of relevant literature (most notably (Pritchard, 2007)[UNEP-WCMC, 2008; Carpenter et al. 2001)]), a Commission study (Arcadis and IEEP, 2010) recommended that a coherent ecological network should meet the following criteria[11]:

- Adequacy: The individual components of the networks are of sufficient size and shape, with an appropriate distribution to ensure the ecological viability and integrity (i.e. Favourable Conservation Status) of its habitats and species of Community interest.
- Representativity: Provides for all of the requirements of all habitat and species of Community interest over their annual cycle (e.g. breeding, roosting, feeding and migrating).
- Resilience: Enables the network's ability to 'undergo, absorb and respond to change and disturbance whilst maintaining its functions and controls'.
- Connectivity: To enable necessary movements of propagules (e.g. larvae and seeds) and individuals for breeding and dispersal, foraging, migration, climate change adaptation, and maintain ecological processes and linkages, etc.

2.3.1.2.2 Species protection systems

The Nature Directives require the establishment of a system of strict species protection, whereby activities negatively affecting the conservation status of the species under protection are prohibited. Systems should also ensure that hunting does not jeopardise conservation efforts, and that it complies with the principles of wise use and ecologically balanced control of the species concerned.

The Nature Directives also specifically require Member States to consider the reintroduction of native species, in order to ensure their effective re-establishment at a Favourable Conservation Status.

2.3.1.3 Operational objectives and actions to be taken

The operational objectives further develop and ensure achievement of the specific objectives. They define the measures to be taken by Member States to implement the Directives. Table 2 below presents the links between them.

1. Measures to implement the specific objective related to **site protection** (Natura 2000)

[11] The Commission organised a workshop on the requirements under Article 10 of the Habitats Directive, at the International Nature Conservation Academy on the Island of Vilm from May 9-13th 2005. It was not an official EU Commission workshop, but the subsequent report was provided as a background document to a meeting of the Scientific Working Group on 21st September 2005.

- **The establishment of the Natura 2000 Network requires Member States to designate SPAs, SCIs and SACs** (Articles 3 and 4 of the Habitats Directive; Articles 3 and 4 of the Birds Directive).

The site designation process under the Habitats Directive is based on scientific criteria listed in Annex III and relevant scientific information following a biogeographic regional approach. It is a multi-step process whereby Member States were first required to propose a list of sites to ensure the protection of the species native to its territory within three years of the notification of the Habitats Directive in June 1992. Secondly, Member States and the Commission, supported by the EEA, had six years from the notification of the Directive to jointly agree the list of Sites of Community Importance (SCIs) at a national and regional level, within the framework of the nine biogeographical regions. As a third step, Member States were required to designate those sites important at European level as SACs within six years, establishing priorities for the maintenance or restoration at a Favourable Conservation Status the habitats or species concerned, and for the coherence of the Natura 2000 network.

The Birds Directive requires Member States to classify as SPAs the most suitable territories in number and size for species under its Annex I (Article 4). Member States must also take similar measures for regularly occurring migratory species in order to protect their breeding, moulting and wintering areas and staging posts along their migration routes within the area covered by the Directive. While the designation process is also based on scientific criteria, the process for site selection and designation of SPAs is simpler than that required by the Habitats Directive. Member States communicate their selected sites to the Commission, and there is no deadline established in the Directive for the designation of SPAs.

- **Member States are required to establish site protection measures in Natura 2000 sites:**

The concept of site protection measures relates to all of the measures required by the Nature Directives to ensure the protection of habitats and species in Natura 2000 sites. Those measures are required as soon as the site joins the list of SCIs. They differ from the species protection measures, which target species conservation without any relation to the Natura 2000 sites they are in and which apply from the moment the Directives entered into force.

For each SAC under the Habitats Directive, Member States must adopt conservation measures, including management plans if necessary. They must also ensure that appropriate statutory, administrative or contractual measures are available for the SACs (Article 6(1) of the Habitats Directive) to maintain or restore biodiversity at Favourable Conservation Status (as defined in Article 1 of the Habitats Directive). SPAs are subject to special conservation measures which may also include management plans (Article 4(1) and 4(2) of the Birds Directive.

While all Natura 2000 sites are subject to conservation measures, Member States have discretion on the most appropriate means to ensure site management. The Commission 2013 note set out the Commission's expectation that measures are adopted through a participatory process among all stakeholders concerned, providing for economic activities to be carried out which respect or support the site's conservation objectives (European Commission, 2014a). These measures must be adopted within six years of the adoption of the list of SCIs.

Article 8 of the Habitats Directive establishes a system for ensuring the appropriate financing of the Natura 2000 network from both Commission funding sources and sources at Member State level. The funding should cover Member States' needs to meet their obligations relating to the management of the Natura 2000 sites according to Article 6(1). Prioritised Action Framework (PAF) of measures for co-financing should be adopted by the Commission once the sites have been designated.

Based on the precautionary principle additional measures should aim to avoid any deterioration of habitats and disturbance of the species for which the areas have been designated (Article 6(2)) from the moment they are included in the list of SCIs.

Measures should also ensure that the conditions set out by Article 6(3) and (4) of the Habitats Directive are respected during the authorisation of plans and projects by permitting authorities, where these are likely to have a significant effect on SCIs, SACs and SPAs. This requires an assessment of the implications of a project or a plan before it is approved, in view of its conservation objectives for the site and, in particular, the potential effects on the particular habitats or species for which the site was designated. It applies to plans or projects both inside and outside the Natura 2000 network that may have significant effects on the site. Such plans or projects can only be approved once it has been determined that they will not adversely affect the integrity of the site and, if appropriate, after public consultation (Article 6(3) and (4) of the Habitats Directive).

In exceptional circumstances, authorisations can be granted following a negative assessment, provided there are no other alternative solutions in relation to the site's conservation objectives, and for imperative reasons of overriding public interest. In such cases, the Member State is required to take the necessary compensatory measures to ensure the overall coherence of the Natura 2000 network. Commission notes have been developed to guide Member States on the following issues related to the management of Natura 2000 sites:

- Designation of Special Areas of Conservation (final version 14 May 2012)[12].
- Setting conservation objectives for Natura 2000 sites (November 2012)[13].
- Establishing conservation measures for Natura 2000 sites (September 2013) (European Commission, 2014a).

Commission Guidance on Article 6 includes:

- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- Guidance on Financing Natura 2000.
- Guidelines for the establishment of the Natura 2000 network in the marine environment: Application of the Habitats and Birds Directives.
- Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC: Assessment of plans and projects significantly affecting Natura 2000 sites.
- Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC. Thisprovides clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission. (2007 Updated version replacing the section on Article 6(4) of the earlier booklet "Managing Natura 2000 sites").

In addition, the Commission Opinions related to Article 6(4) and required before approval of the plan or project is granted on the basis of imperative reasons of overriding public interest, are published in the Commission website[14].

12 http://ec.europa.eu/environment/nature/natura2000/management/docs/commission_note/commission_note_EN.pdf accessed 17.02.16

13 http://ec.europa.eu/environment/nature/natura2000/management/docs/commission_note/commission_note2_EN.pdf accessed 17.02.16

14 http://ec.europa.eu/environment/nature/natura2000/management/opinion_en.htm accessed 17.02.16

The Commission has also developed sector-specific guidance on the implementation of Article 6 related to the following policy areas:

- Guidance on Natura 2000 and forests.
- Guidance document "Farming for Natura 2000".
- Guidance on Aquaculture and Natura 2000 - Sustainable aquaculture activities in the context of the Natura 2000 network wind farms.
- Inland waterway transport and Natura 2000 - sustainable inland waterway development and management in the context of the EU Birds and Habitats Directives.
- The implementation of the Birds and Habitats Directives in estuaries and coastal zones.
- Commission Staff Working Document on Integrating biodiversity and nature into port development.
- Wind energy developments and Natura 2000.
- Non-energy mineral extraction and Natura 2000.
- Guidance document on Climate change and Natura 2000.
- Introducing fisheries measures for marine Natura 2000 sites.
- Methodology for assessing the impact of fisheries on marine Natura 2000 sites.

The overall objective of these Guidance documents is to establish a better understanding of the application of the Article 6 procedure to development plans and projects in these sectors, and to provide further advice on carrying out an Appropriate Assessment (AA). These Guidance documents have been developed in close cooperation with the stakeholders concerned[15].

- **The Habitats Directive empowers Member States to adopt measures to improve the overall coherence of the Natura 2000 network** (in addition to the criteria for proposing and selecting sites).

Article 4 of the Birds Directive refers to the need for the protected areas for Annex I species and for migratory species to form a coherent whole which meets the protection requirements.

Article 3(3) of the Habitats Directive is more specific and refers to the Natura 2000 as a coherent network stating, 'where they consider it necessary, Member States shall endeavour to improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora, as referred to in Article 10.' Article 10 further states that 'Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora.' Those features are important in their structure or function as stepping stones and are critical to ensuring the ecological coherence of the network.

The Article 10 provisions are not mandatory, and remain at the discretion of Member States. However, a DG Environment commissioned report (Kettunen et al, 2007) concluded that, in principle, Article 10 measures should be taken when Member States regard them as necessary to achieve the overall objectives of the Directives, especially for

[15] http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm accessed 17.02.16

the maintenance or restoration of the species and habitats at Favourable Conservation Status. As indicated in the State of Play chapter (see section 3.4) few habitats and species are in Favourable Conservation Status and it could be expected, therefore, that Member States should be taking some steps to implement Article 10 to some degree.

In this context the Commission has adopted the following Guidance document to support Member States on the implementation of the operational objectives regarding the coherence of the Natura 2000 Network:

- Guidelines for the management of wilderness and wild areas in Natura 2000.

2. Measures to implement the strategic objective related to **species protection systems**

Under the Birds Directive

- **Member States are required to establish a general system of protection of all species of birds covered by the Directive** (Article 5 of the Birds Directive).
  - Article 6 requires Member States to prohibit the sale of wild birds (including the transport, keeping or offering for sale)unless listed in Annex III/1 and provided the birds have been legally killed or captured, or otherwise legally acquired. Further species listed in Annex III/2 may also be exempt from this prohibition by Member States on a case-by-case basis and following consultation with the Commission.
  - Article 7 allows the hunting of bird species listed in Annex II of the Directive, which may be either hunted anywhere (those listed in Annex II/1), or in the Member States indicated (listed in Annex II/2). Hunting must not jeopardise conservation efforts and must comply with the principles of wise use and ecologically balanced control of the species concerned. Member States should provide relevant information on the practical application of their hunting regulations to the Commission.
  - Under Article 8(1) Member States are required to prohibit the use of all means of large-scale or non-selective killing of birds, or methods capable of causing the local disappearance of species, especially those listed in Annex IV(a). Under Article 8(2), they must prohibit hunting from modes of transport listed in Annex IV(b).
  - In accordance with Article 9, where there are no other satisfactory solutions Member States may derogate from the prohibitions under Articles (5-8) for the following reasons:
    - In the interest of public health and safety.
    - In the interest of air safety.
    - To prevent serious damage to crops, livestock, forests, fisheries and water.
    - For the protection of flora and fauna.
    - For the purposes of research and teaching.
    - For repopulation or reintroduction.
    - To permit, under strictly supervised conditions and on a selective basis, the capture, keeping or other judicious use of certain birds in small numbers.
  - Member States do not need to consult the Commission before applying derogations but are obliged to report annually to the European Commission on all derogations.

Under the Habitats Directive

- **Member States are required to establish a system of strict protection** (e.g. from killing, disturbance, keeping, transportation and sale) for animal species listed in Annex IVa (Article 12 of the Habitats Directive).
    - They are also required to monitor the incidental capture or killing of the species' listed, and, if necessary, to conduct research or conservation measures to ensure that incidental losses do not have a significant negative effect on the species. Similarly, under Article 13, Member States are required to establish a system for the strict protection of plants listed in Annex VIb.
    - Under Article 14, in the light of surveillance results, Member States may adopt measures (e.g. licensing systems and closed seasons), to ensure that taking in the wild of those species listed in Annex V of the Directive, as well as their exploitation, is compatible with their being maintained at FCS.
    - Under Article 15 Member States must prohibit all indiscriminate means of capturing or killing wild fauna listed in Annex V(a) and any listed in IV(a), if capture or killing is permitted under a derogation that may result in their local disappearance or serious disturbance of their populations. More particularly, they must prohibit methods and means of capture and killing set out in Annex VI(a), and any form of capture or killing from the modes of transport listed in Annex VI(b).
    - The species protection measures afforded by Articles 12–15 may be subject to derogations in accordance with Article 16, provided that there is no satisfactory alternative and they are not detrimental to the maintenance of the populations of the species at a Favourable Conservation Status. Derogations are only allowed for specific reasons, similar to those listed under Article 9 of the Birds Directive (see above) and including other imperative reasons of overriding public interest. Member States must send a report on derogations to the Commission every two years, and the Commission must give an opinion on the derogations within 12 months.

3. Complementary measures to implement both objectives: site protection and species protection systems

- **Member States must undertake monitoring of the conservation status of habitats and species of Community importance** (Article 11 of the Habitats Directive).

Until recently, monitoring of the performance of the Birds Directive has focused on the implementation of measures rather than the status of species. In contrast, the direct monitoring of the conservation status of all habitats and species of Community interest (inside or outside Natura 2000) is an explicit obligation arising from Article 11 of the Habitats Directive, and reports must be provided every six years in accordance with provisions under Article 17.

- **Member States should encourage research and scientific work**

Article 18 of the Habitats Directive requires Member States to encourage research and scientific work related to the strategic objectives (Article 2) and the monitoring obligations. Article 10 of the Birds Directive also requires Member States to encourage research as a basis for the protection, management and use of the population of bird species.

- **Member States must ensure that introductions of non-native species do not prejudice native habitats and species** (Article 11 of the Birds Directive and Article 22 of the Habitats Directive).

These should be limited to native species not requiring site management measures (Annex IV of the Habitats Directive).

Financial, human and institutional resources and knowledge are required to support the activities to achieve these operational objectives. Financial resources include capital and operating expenditures, human resources include the administrative time devoted by authorities in administering the system and stakeholders in complying with the rules, and institutional resources include the legal aspects that are not generally considered under financial or human resources. The activities required to achieve the objectives align with the operational objectives described.

Table 2 How the Nature Directives work: measures linked to objectives

<table>
<tr><th colspan="2">General objectives</th><th>Specific objectives</th><th colspan="2">Operational objectives/Measures</th></tr>
<tr><th>Birds Directive</th><th>Habitats Directive</th><th>Birds and Habitats Directives</th><th>Birds Directive</th><th>Habitats Directive</th></tr>
<tr><td rowspan="3">Article 2

To maintain the population of all species of naturally occurring birds in the wild in the European territory of the Member States to which the Treaty applies at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level.</td><td rowspan="3">Article 2

To contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies.

To maintain or restore, at favorable conservation status, natural habitats and species of wild fauna and flora of Community interest.</td><td rowspan="2">Establishment and management of Natura 2000 (Article 3 Birds Directive and Articles 3 and 6 Habitats Directive).</td><td>• Member States shall subject threatened and migratory species to special conservation measures concerning their habitats (Article 4(1) and (2)).
• Member States classify SPAs of the most suitable territories in number and size for the conservation of threatened species (Article 4(1)).
• Member States encourage research into relevant subjects (Article 10).</td><td>• Member States identify SCIs based on scientific criteria and propose them to the Commission within three years of notification of the Directive (Article 4(1)).
• The Commission publishes the list of SCIs within six years of notification of the Directive (Article 4(2-3)).
• Member States designate SACs within six years of adoption of the list of SCIs (Article 4(4)).
• Member States undertake surveillance of habitats and species of Community interest (Article 11).</td></tr>
<tr><td colspan="2">• Member States establish necessary conservation measures for SACs, including, if appropriate, management plans (Article 6(1) Habitats Directive).
• Member States ensure no deterioration of habitats and disturbance to species in Natura 2000 sites (Article 6(2) Habitats Directive).
• Member States ensure that plans or projects likely to affect Natura 2000 sites are subject to Appropriate Assessment (Article 6(3) Habitats Directive).
• Member States ensure that developments affecting the integrity of the site are not approved unless there are no alternative solutions, and for imperative reasons of overriding public interest and if compensatory measures are taken (Article 6(4) Habitats Directive).
• Member States identify funding needs to achieve a Favourable Conservation Status of priority habitats and species for the Commission to provide funding measures (Article 8 Habitats Directive).
• Member States encourage the management of landscape features to improve the ecological coherence of Natura 2000 network (Article 3(3) and Article 10 Habitats Directive).</td></tr>
<tr><td>Ensure species protection (Articles 5 and 7 of the Birds Directive and Articles 12-14 of the Habitats Directive).</td><td>• Member States establish a general system of protection for all wild birds that prohibits certain actions related to their killing, disturbance, destruction of nests, etc. (Article 5).
• Member States prohibit the sale of wild birds, except those species listed in Annex III/A, and, subject to consultation with the Commission, those listed in Annex III/B (Article 6).
• Member States ensure hunting of certain bird species does not jeopardise conservation efforts in their distribution area and that additional conditions are met (Articles 7 and 8).
• Member States ensure derogations to prohibitions are granted if no satisfactory alternative and provided that specific conditions are respected (Article 9).
• Member States encourage research into relevant subjects (Article 10).
• Member States ensure that introductions of non-native species do not prejudice local flora and fauna (Article 11).</td><td>• Member States undertake surveillance of habitats and species of Community interest (Article 11).
• Member States establish strict systems of species protection that prohibit their killing, sale or deliberate disturbance and destruction of breeding sites (Article 12).
• Member States establish strict protection systems for plant species that prohibit their destruction, picking, keeping, etc. (Article 13).
• Member States ensure hunting is compatible with a Favourable Conservation Status of species (Articles 14 and 15).
• Member States ensure derogations to prohibitions are granted if no satisfactory alternative and according to the listed conditions (Article 16).
• Member States undertake research to support the objectives of the Directive (Article 18).
• Member States ensure that introductions of non-native species do not prejudice native habitats and species. They also consider the desirability of reintroducing native species (Article 22 a) b)).</td></tr>
</table>

3 State of play

3.1 Introduction

This section covers the status of implementation of the Nature Directives according to their objectives as described in section 2.3.1. It firstly provides a summary of the state of play with respect to the establishment of the Natura 2000 network, as a particularly important specific objective of the Birds and Habitats Directive (see section 2) that has been the main focus of action by most Member States until recently. An overview of the conservation status of habitats and species covered by the Directives is then provided, based on the results of the 2006/07-2012 reporting by Member States, reflecting the impact of the establishment of the Natura 2000 network and measures taken under the Directives, as well as other influences (e.g. national conservation measures, trends in land and sea use, other EU policies and external pressures). A more detailed evaluation of progress with respect to these specific objectives (including the sufficiency of the Natura 2000 network) and the implementation of other more specific measures is provided in the analysis of Effectiveness (see section 5). A summary of the results of the assessment of pressures and threats affecting EU protected habitats and species is included in the Relevance chapter (section 7.1).

The implementation of the Directives has been subject to extensive monitoring from all key players including the European Commission, Member States and citizens. The Commission has received a significant number of complaints regarding alleged breaches of the Nature Directives' provisions since their adoption. Section 3.3 therefore presents an overview of the enforcement of the Nature Directives at EU level. It describes the main implementation trends related to the EU enforcement actions, before then summarising the key lessons learned on interpretation and implementation of the legislation from the relevant EU case law.

A final part draws conclusions on the current state of implementation, taking account of the evolution of the role of EU level enforcement and guidance actions in promoting better implementation of the Directives.

The State of Play provides an important part of the evidence base for the analysis of the evaluation questions and the conclusions of the study.

3.2 Effective status of implementation

3.2.1 The establishment of Natura 2000

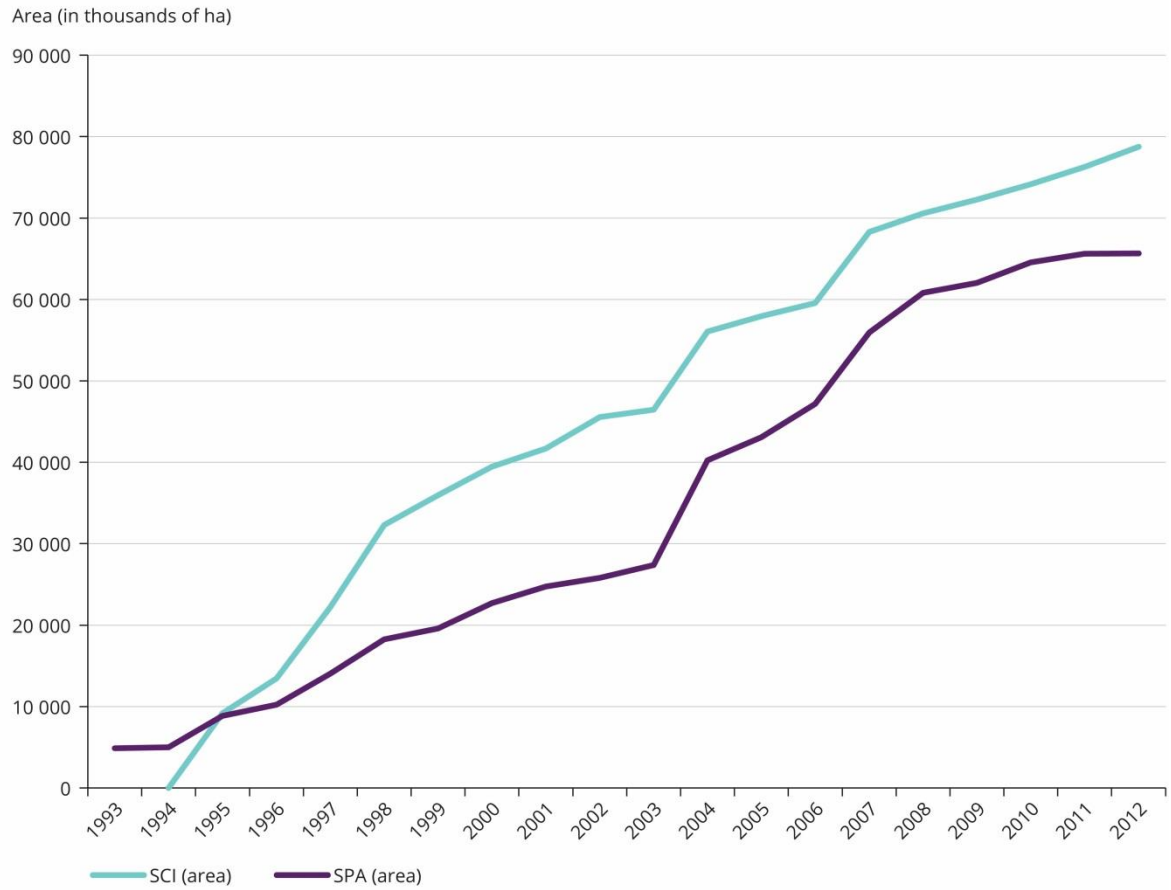
According to the last update published in the Natura 2000 Newsletter in June 2015, the terrestrial network of Natura 2000 sites covers 788,477 km² (more than 18% of the EU's land surface) and 318,133 km² in the marine environment (about 6% of the EU's sea area) and is the world's largest co-ordinated network of nature conservation areas (EEA, 2015)[16][17][18]. As further discussed in question S.1 (see section 5.1), the terrestrial Natura 2000 network is now regarded by the Commission as largely complete[19]. Progress with

[16] http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat38_en.pdf
[17] Sites designated as SPA and/or SCI, including SCIs already designated as SACs and potential SCIs submitted to the Commission
[18] European Commission 2015. The mid-term review of the EU Biodiversity Strategy to 2020. COM/2015/0478 final, (2.10.2015).
[19] Natura 2000 Barometer: http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm

the establishment of the marine component of the network has been slower (in part due to legal uncertainty over offshore requirements (see section 5.1) and knowledge gaps (see discussion under section 5.3). Consequently, a substantial increase in the number of sites is required to complete the marine network, particularly for the offshore environment.

Figure 2 shows the cumulative terrestrial surface areas identified or designated as potential SCI, SCI and SPA between 1993 and 2012 (EEA, 2015). This shows that while there have been some rapid increases in area due to Member State accessions - most notably in 2004 when ten Member States joined the EU, and again in 2007 when Romania and Bulgaria joined the EU, the cumulative area has also been consistently increasing as Member States proposed new sites[20].

Figure 2 Cumulative surface area identified as pSCI or SCI or cumulative surface area of SPA



Source: EEA (2015)

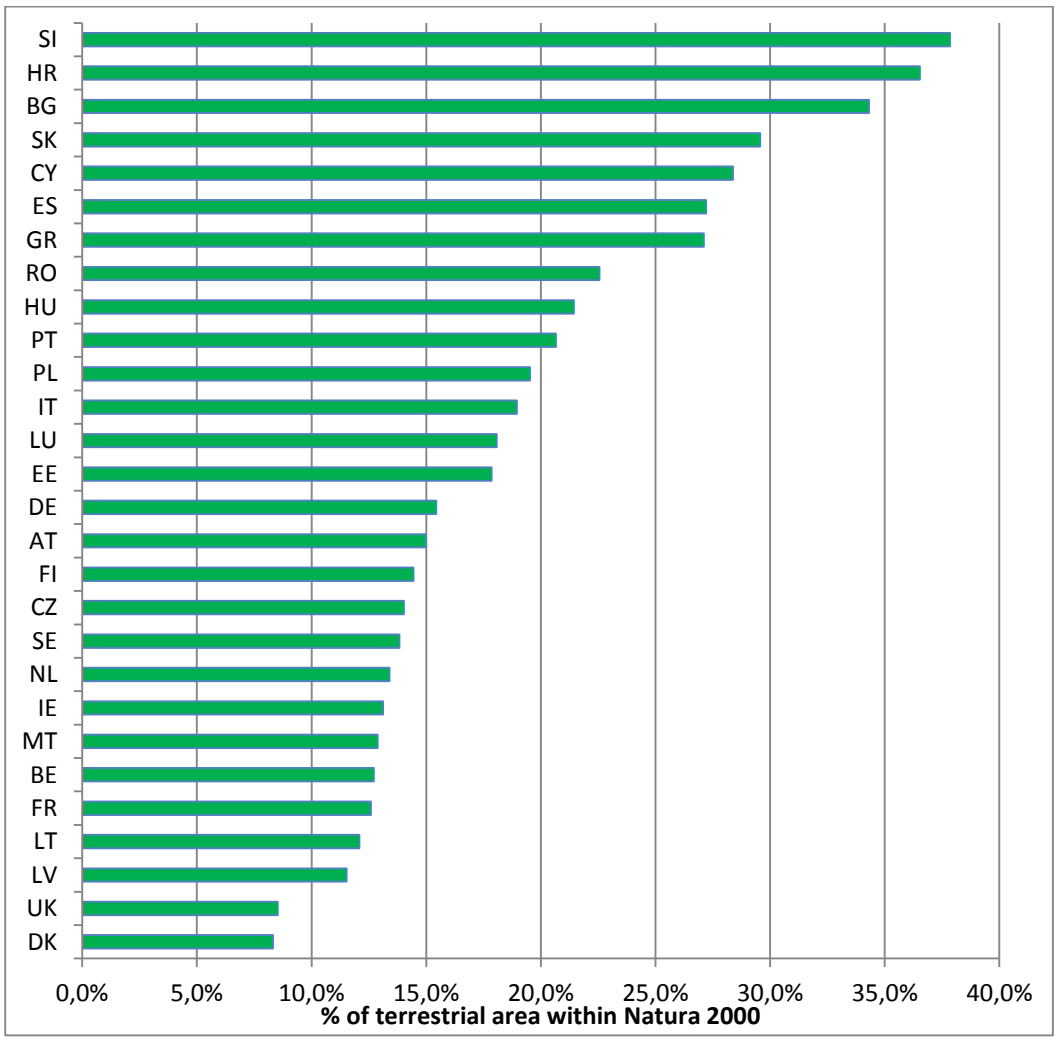
The identification and designation of marine SCIs and SPAs has progressed substantially since 2006, with the marine area of SCI sites increasing by 127,192km^2 and marine SPA sites by 66,865km^2, largely due to additions in France and the UK.

The percentage of each Member State's terrestrial area within the Natura 2000 network is shown in

[20] Czech Republic, Slovakia, Hungary, Slovenia, Poland, Latvia, Lithuania, Estonia, Malta and Cyprus.

Figure 3. This displays large differences between the proportion of land designated as Natura 2000 in each Member State, ranging from a high of 38% of Slovenia's land areaand 35% of Bulgaria, to a low of 8% in Denmark and the UK. This is in part due to the amount of natural and semi-natural habitat that remains in each country, but also because Member States have taken different approaches to the selection of terrestrial sites. Several Member States (e.g. Romania) have mainly proposed broadly delineated large Natura 2000 sites that include some areas of non-qualifying habitat (i.e. that are not listed in Annex I of the Habitats Directive or habitats of European protected species), for example as areas in need of restoration or as 'buffer zones'. Others, such as the UK, have delineated their sites more precisely, focusing on the location of qualifying features habitat. Site size varies greatly, from less than 1 ha (e.g. some bat roosts and cave entrances) to 5,546 km[221], currently the largest terrestrial site.

Figure 3 % of the terrestrial portion of a Member State designated as Natura 2000 at the end of 2013



Source: Data from Member State reports submitted to the European Commission included in the Natura 2000 barometer[22].

[21] Vindelfjällen in Sweden.
[22] http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm accessed 17.02.16

3.2.2 The overall status of European protected habitats and species in the EU

3.2.2.1 Monitoring and reporting requirements and processes

For the most recent Member States' reports (2006 to 2012) under Article 12 of the Birds Directive, a reporting format was agreed that provides information on the status of bird populations according to their size and trend, over a short-term period (i.e. 12 years, ideally 2001-2012) and a long-term period (i.e. 32 years, ideally since 1980). On the basis of a compilation of these national datasets, bird populations were then assessed at EU level as either secure, depleted, declining, near threatened, threatened or unknown, and their trend as either increasing, stable, fluctuating, decreasing, or unknown. In total, Member States provided 5,473 reports for breeding birds, covering 455 wild breeding bird taxa[23]. They also produced 1,023 winter bird reports, covering 190 wintering bird taxa.

The Habitats Directive provides a definition of Favourable Conservation Status (section 2), that has been used as the basis for assessing conservation status of habitats and species in each biogeographical region, both at the national biogeographical and the EU biogeographical level. In the most recent Member State reports (2007-2012) under Article 17 of the Habitats Directive, conservation status is reported as either favourable, unfavourable-inadequate, unfavourable-bad, or unknown, and the trend is reported as either improving, stable, declining, or unknown. In total, the assessment included 6,759 Member State reports on more than 1,250 taxa in the Habitats Directive and 3,022 reports on 231 habitat types[24][25].

3.2.2.1.1 The status of habitats and species

Overall, 447 bird taxa were assessed for population status, and 454 that breed in the EU were assessed for short-term trends and 455 for long-term trends. The results for 2006-2012 were:

EU bird population status

52% of bird taxa assessed have a secure population in the EU, while 17% are threatened and 15% are near threatened, or have a declining or depleted population; the population status of 16% of the bird species in the EU is unknown.

Breeding birds short-term trends (12 years)

30% of the short-term trends are decreasing, 28% are increasing, 21% are stable and 2% are fluctuating; the short-term trends of 19% of breeding bird taxa are unknown or uncertain.

[23] In this context, taxa refers to species and some selected sub-species.
[24] No data were received from Greece in time for the assessment.
[25] No data were received from Greece in time for the assessment.

Breeding birds long-term trends (32 years)

27% of the long-term trends are decreasing, 31% are increasing, 11% are stable and 1% are fluctuating; the long-term trends of 30% of the breeding bird taxa are unknown or uncertain.

Annex I bird taxa (species that require species conservation measures concerning their habitat)

The EU populations of 23% of the Annex I species are threatened, while 48% are secure; as expected, a relatively high proportion have a threatened population status, compared to EU birds overall.

40% of the breeding bird taxa in Annex I show increasing long-term population trends, compared to 31% of all breeding bird taxa, and a relatively low proportion of taxa have a decreasing population trend.

Annex II bird taxa (huntable species)

More than 40% of the huntable breeding bird taxa show a decreasing population trend. 46% of the short-term trends are decreasing, compared to 30% of all breeding bird taxa.

Habitats and non-bird species

The status of habitats and species under the Habitats Directive is assessed at the EU level within each biogeographical or marine region, with one to nine assessments for each habitat type and species, depending on how many regions they occur in. The EU level status in 2007-2012 was:

Non-bird species conservation status

23% of the 2,665 species assessments are favourable with 60% unfavourable and 17% unknown; 42% are unfavourable-inadequate, while 18% are unfavourable-bad.

The majority of species with unfavourable assessments are unfavourable-declining (22%) or unfavourable-stable (20%), with 4% unfavourable-improving; the trends of 14% of unfavourable species assessments remain unknown.

Over 50% of marine species were reported as unknown; however, the species number (around 60) is low compared to the terrestrial species (around 1,200), and many are only occasionally found in the EU.

Habitats conservation status

Over 16% of the 804 habitats assessments are favourable, while 77% are unfavourable and 7% remain of unknown status; 47% are unfavourable-inadequate, with 30% unfavourable-bad.

The majority of habitats with unfavourable assessments are unfavourable-stable (33%) or unfavourable-declining (30%), while 4% are unfavourable-improving. 7% of unfavourable assessments have an unknown trend.

The share of unknown marine habitat assessments (0-50%) is substantially higher than unknown terrestrial habitats (2-10%).

3.2.2.1.2 Conservation status in biogeographical regions

The Alpine, Macaronesian and Steppic regions have comparatively high shares of favourable terrestrial habitat status assessments (from 25% to 50%), while the Atlantic and Boreal regions have fewer than 10% favourable habitat assessments.

In the majority of biogeographical regions, most of the unfavourable terrestrial habitat assessments are stable, but in the Boreal region almost half of the habitats are unfavourable-declining.

The highest shares of favourable terrestrial species assessments were reported from the Black Sea and Alpine regions (exceeding 30%), whilst the highest shares of unfavourable-bad species assessments were reported in the Atlantic (32%) and Boreal regions (29%).

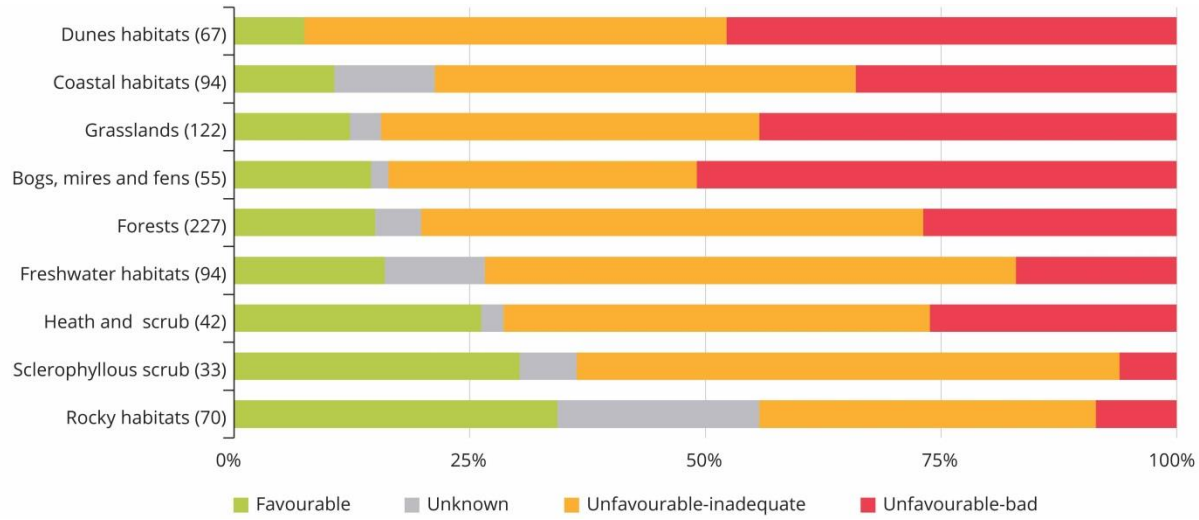
Only the Marine Macaronesian region and the Marine Black Sea region reported favourable marine habitat assessments (33.3% and 14/3% respectively), while the Marine Atlantic and Marine Baltic regions show the highest proportions of unfavourable-bad habitat assessments (71.4% and 42.9% respectively).

The Member State level reporting reveals some linkages between the relative proportions of favourable and unfavourable habitats and species within Member States, and in general indicates that Northern and North-eastern countries have a larger share of favourable assessments. There are some discrepancies in the reported data, of which an indeterminate proportion is attributable to differences in data quality and use of methodology for assessing conservation status (see section 6.8 for a discussion of knowledge gaps). However, as the data were subjected to assessments by experts in each taxonomic group, the impact of errors on the EU-level assessment has been minimised.

3.2.2.1.3 Variation in the conservation status of habitats and species groups

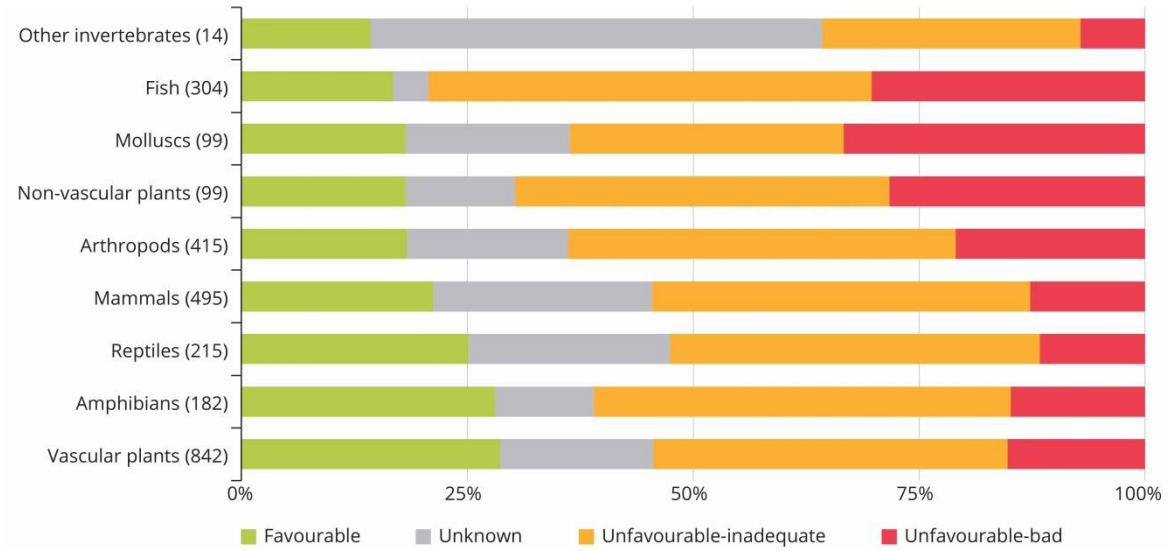
The 2015 State of Nature Report (EEA, 2015) breaks down the conservation status assessments according to some taxa groups (Figure 4) and provides detailed accounts of the status of habitats by group (Figure 5).

Figure 4 Conservation status by main type of habitats



Source: EEA (2015)

Figure 5 Proportion of non-bird species assessments in conservation status class



Source: EEA (2015)

This reveals variations in conservation status amongst the various groups of species and habitats. Amongst the habitat groups, rocky habitats have the largest proportion of favourable habitat assessments, along with heath and scrub, and sclerophyllous scrub with more than 25% of assessments being favourable[26]. In contrast, dunes had the lowest proportion of favourable assessments, with coastal habitats and grasslands also having particularly low favourable proportions. Dune habitats and bogs, mires and fens also had a high proportion of assessments in the unfavourable-bad category. The 2015 State of Nature Report also revealed that a particularly high proportion of this latter habitat group, along with grasslands, are further declining or deteriorating.

The species comparisons suggest that there is less variation in the proportion of favourable assessments amongst species groups than habitats, ranging from 29% in vascular plants down to 14% in invertebrates (other than molluscs and arthropods). However, there is more variation in the proportion of unfavourable-bad assessments, with fish, molluscs and non-vascular plants having high proportions in this category. A particularly high proportion of fish with an unfavourable status are declining.

The most recent assessment of extinction risk according to IUCN Red List criteria also reveal that a substantial proportion of some taxa are threatened in the EU-27:

- 47% of European / globally protected vascular plant taxa (Bilz et al, 2011)[27].
- Approximately 15% of dragonfly species are threatened, whilet for a further 12%, information remains too limited to define trends (Kalkman et al, 2010).
- Nearly 14% of the assessed selection of saproxylic beetles are threatened, and it was not possible to assess the status or trends of 28% of the species (Nieto and Alexander, 2010).
- 44% of species of freshwater molluscs (Cuttelod et al, 2011).
- At least 39% of freshwater fish (Freyhof and Brooks, 2011).
- 23% of amphibians (Temple and Cox, 2009).
- 19% of reptiles (Cox and Temple, 2009).

[26] I.e. shrubs and small trees with small evergreen, thick and leathery leaves, typical of the Mediterranean.
[27] Plant taxa listed in the Habitats Directive, Bern Convention, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and/or EU Wildlife Trade Regulation.

3.3 Implementation and enforcement of the Nature Directives

Effective implementation and enforcement of (nature) legislation are crucial to achieving its objectives and delivering expected benefits[28]. Several decades after the adoption of the Birds Directives (Directive 79/409/EEC and Directive 2009/147/EC) and the Habitats Directive (Directive 92/43/EC), this section provides an overview of their implementation and enforcement, based on an analysis of the available information on complaints, closed infringements dealt with by the Commission and the relevant judgements delivered by the Court of Justice of the EU (CJEU).

The implementation of the Nature Directives is the subject of the study to support the Fitness Check on the Nature Directives, as stated in the Communication on REFIT[29]. This section presents those aspects of the implementation and enforcement of the Nature Directives that are not specific subjects of analysis in any of the evaluation questions (listed in section 4.1). It provides additional analysis of the main trends in the implementation of the Nature Directives from their adoption until now that complements and supports the analysis presented in other sections of this study.

In addition to information identified through the general literature review carried out for the study, this section draws on publically available information on infringement procedures related to the Nature Directives launched by the Commission since 1981[30]. This section analyses the information provided by the Commission on 12,772 'reported breaches' of EU environmental legislation, from which 4,102 relate to the Nature Directives, and on the 768 infringements regarding the Nature Directives. The term 'reported breaches' used throughout this chapter refers to the alleged breaches identified by the Commission, as well as those signalled by the European Parliament and by complainants, irrespective of whether or not the Commission has taken any particular procedural steps, such as initiating an infringement procedure.

This section first describes the key players in the implementation and enforcement of the Directives, taking into account the role of civil society. It then provides a brief overview of the overall transposition and implementation of the Nature Directives across the EU, highlighting where the full potential of the Directives was hindered by delayed transposition and implementation. Finally, it underlines the evolution of the interpretation of the Nature Directives based on landmark rulings from the CJEU.

3.3.1 Key players in the implementation and enforcement of the Directives

Implementation and enforcement of EU law is based on the distribution of powers enshrined in the Treaties. Member States and the Commission have a shared responsibility for implementing and enforcing EU law, which is also recognised by the CJEU[31]. According to the Treaty on European Union (TEU), Member States shall take any appropriate measure, general or particular, to ensure fulfilment of the obligations arising out of the Treaties or resulting from the acts of the institutions of the Union[32]. Member States and

[28] European Commission, Better regulation for better results, 2015, COM (2015) 215. European Commission, Internal Market Scoreboard No 26, 2013, SWD (2013) 46 Final.
[29] COM(2014) 368 final 18.6.2014.
[30] European Commission, Search tool on infringement decisions: http://ec.europa.eu/atwork/applying-eu-law/infringements-proceedings/infringement_decisions/
[31] Case C-365/97, *Commission* v *Italy* [1999] ECR I-7773.
[32] Article 4(3) TEU.

the EU are also required to assist each other in carrying out tasks arising from the Treaties.

While Member States are primarily responsible for implementing EU law, the Commission monitors implementation by Member States and enforces EU law once a breach has been identified. As Guardian of the Treaties, the Commission's institutional role is to ensure the correct application of those obligations and '…oversee the application of Union law under the control of the Court of Justice of the European Union'[33]. The main tools to perform this role are the infringement procedures laid down in Articles 258 and 260 of the Treaty on the Functioning of the European Union (TFEU). In addition, the Commission has developed complementary tools to assist Member States with implementation, such as guidelines, implementation plans, networks and committees, or to monitor the implementation of legal obligations such as scoreboards and barometers. Conformity checking studies and structured bilateral dialogue with the Member States are equally important tools regularly used by the Commission in performing its role as Guardian of the Treaties.

Delays or incorrect application of EU law weakens the legal system itself, reduces the chance to fully achieve policy goals and the objectives of the legislation and adversely affects the level playing field and deprives citizens and businesses of potential benefits. Non-action over breaches of EU law may have costs beyond the economic, such as harming citizens' health, putting lives or biodiversity at risk.

Ultimately, all mandatory EU measures have to be applied and enforced by national authorities by the established date. The provisions of the Directives generally set out a two-year transposition time limit, subject to adaptation depending on the date of accession of Member States to the EU, within which national or sub-national transposing legislation must be adopted and implemented. Directives often include additional obligations 'of result' addressed to Member States to be complied with by specific deadlines. The EU must, therefore, rely on national political, administrative and judicial structures to correctly transpose, apply and enforce EU law.

Member States' lack of compliance with their EU legal obligations remains an unresolved issue. In its 2014 Annual Report on monitoring the application of EU law, the Commission reported the launch of 893 new infringement procedures[34]. The most infringement-prone policy areas are: Environment (19%), Mobility & transport (19%), Health & consumers (15%) and Internal market (13%).

Data provided by the Commission on reported breaches of EU law (covering not only infringements but also petitions and complaints, as explained above) allows further examination of the situation in the **environmental sector**. According to this data, 12,772 cases related to environmental matters have been reported over the period 1981 to 2016. The number of breaches reported on nature related matters, including the Nature Directives[35], has been, since 1981, the highest of all environmental sectors, comprising

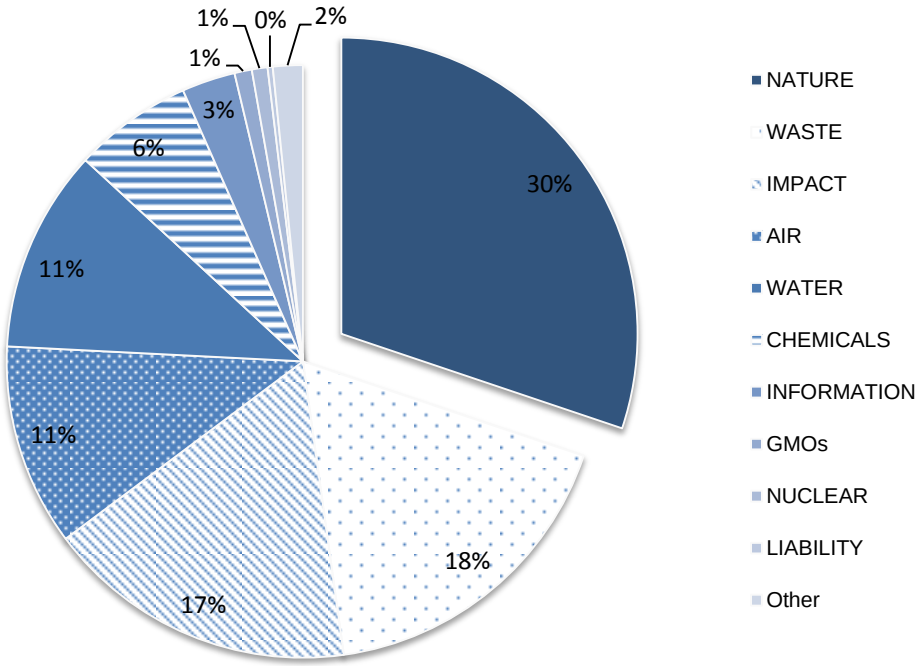
[33] Article 17(1) TEU.

[34] Report from the Commission – 32nd Annual Report on monitoring the application of EU law (2014) [COM(2015) 329].

[35] The "Nature sector" encompasses the reported breaches for which the main legal basis is either Directive 79/409/EEC; Directive 92/43/EC; Directive 2009/147/EC; or Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment; Directive 75/442/EEC and Directive 2006/12/EC on waste; Directive 91/689/EEC on hazardous waste; Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment; Directive 2006/113/EC on the quality required of shellfish waters; Regulation (EEC) 2080/92 instituting a Community aid scheme for forestry measures in agriculture; Directive 83/129/EEC and Directive 89/370/EEC concerning the importation into Member States of skins of certain seal pups and products derived therefrom; Directive 86/609/EEC regarding the protection of animals used for experimental and other scientific purposes; Directive 1999/22/EC relating to the keeping of wild animals in zoos; Regulation (EC) 338/97 on the protection of species of wild fauna and flora by regulating trade therein, Regulation (EC) 939/97 concerning the implementation of Council Regulation (EC) No 338/97; Council Decision 82/72/EEC concerning the conclusion of the Convention on the conservation of European wildlife and natural habitats; Regulation (EEC) 3626/82 on the implementation in the Community of the Convention on international trade in endangered species of wild fauna and flora; or Directive 2006/105/EC adapting Directives 73/239/EEC, 74/557/EEC, 2002/83/EC or Directive 2013/17/EU adapting certain Directives

2,707 (30.2%) of the total 8,973 cases (Figure 6) for which the database had information on the environmental sector they are allocated to. The 2,707 environmental cases refer to those whose main legal basis are the Birds Directive or the Habitats Directive and exclude those that concern the Nature Directives but their main legal basis are other Directives such as the EIA Directive (impact sector) or the WFD (water sector).

Figure 6 Share of reported breaches per environmental sector (100% = 8973)



Source: Extract from Commission database on infringements. Figure 6 refers to those cases for which the database provides information on the environmental sector they are allocated to.

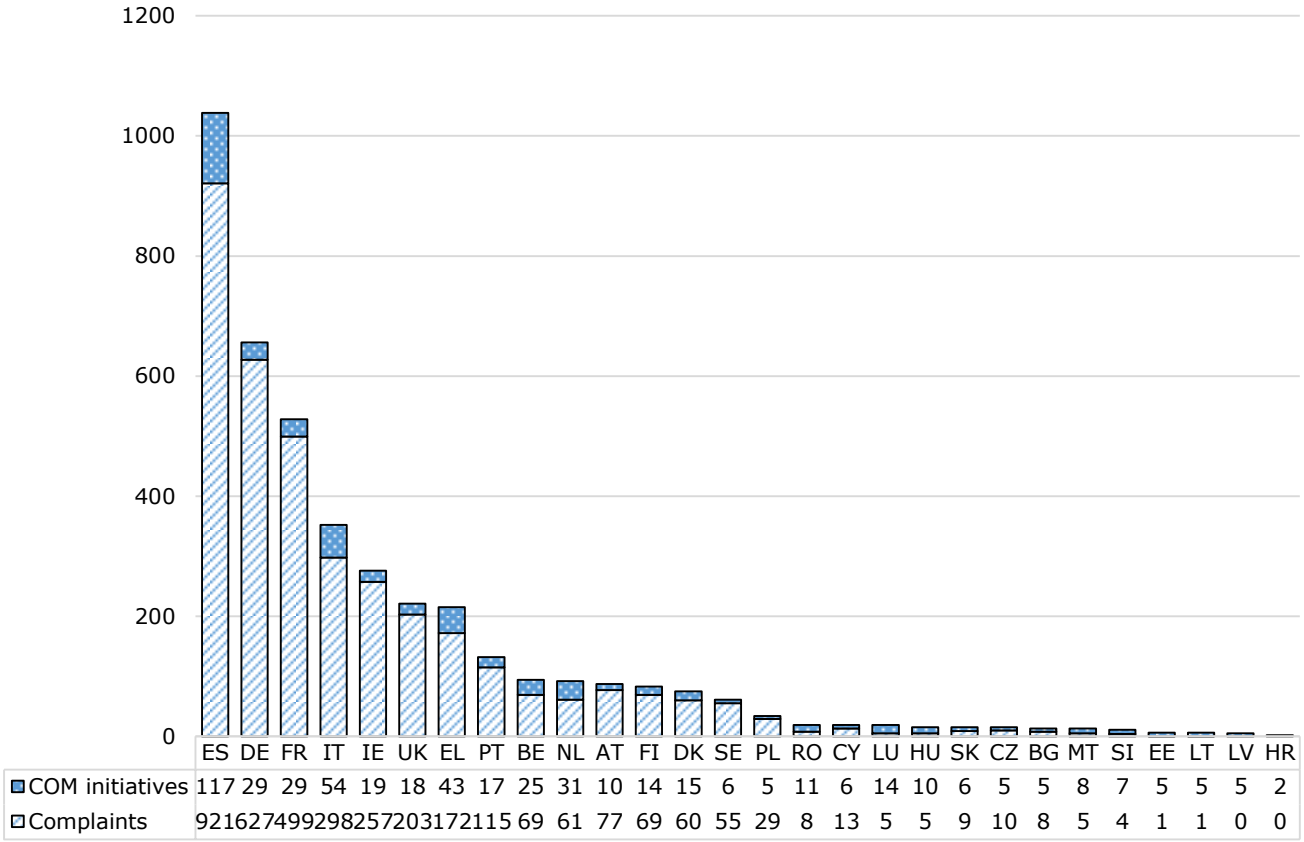
A peculiarity of this area is the remarkably high involvement of citizens, as illustrated by a high share of cases on reported breaches originated from citizens' complaints**Error! eference source not found.**. Strikingly, of the 2,707 reported breaches in the 'Nature' area, 85% were based on complaints, while only 15% were cases initiated by the Commission, including those for which immediate action to initiate infringement procedures was taken.

This contrasts sharply with the sources of reported breaches for all other environmental areas, where 69% were initiated by the Commission. When considering the number of breaches identified by the Commission, the most breaches-prone areas are 'Waste' (25%), 'Air' (22%), 'Chemicals' (14%) and 'Water' (14%).

Under the Birds and Habitats Directives, the share of complaints varies considerably between Member States: 79% of reported breaches in Spain, 76% in France and 86% in Germany come from complaints, compared with only 48% in the Netherlands and 0% in Latvia. It is worth noting that the share of complaints is not proportionate or related to the number of reported breaches as citizens' actions towards the EU may be determined by considerations such as the national legal systems, conditions for access to justice, or perceptions of the effectiveness of national or EU enforcement.

in the field of environment, by reason of the accession. The Nature Directives are the basis of most reported breaches under the "Nature sector", only 46 breaches are reported under that sector and are based on the other legislations listed above.

Figure 7 Number of reported breaches under the Birds and Habitats Directives (per Member State and per source)



	ES	DE	FR	IT	IE	UK	EL	PT	BE	NL	AT	FI	DK	SE	PL	RO	CY	LU	HU	SK	CZ	BG	MT	SI	EE	LT	LV	HR
COM initiatives	117	29	29	54	19	18	43	17	25	31	10	14	15	6	5	11	6	14	10	6	5	5	8	7	5	5	5	2
Complaints	921	627	499	298	257	203	172	115	69	61	77	69	60	55	29	8	13	5	5	9	10	8	5	4	1	1	0	0

Source: Commission database on infringements

In brief, the number of reported breaches under the Birds and Habitats Directives points to the considerable interest of citizens in the area, but also suggests that implementation of the Directives at national and regional levels has been challenging. Strikingly, out of the 4,102 cases reported under the Nature Directives[36], only 768 of them led to action by the Commission. Out of the 4,102 reported breaches 3, 581 (87%) had a complaints' origin and from the total number of infringement procedures 58% were derived from complaints with 110 based on the Birds Directive and 306 on the Habitats Directive. The longstanding problems of implementation and enforcement were acknowledged in the past for EU (environmental) law in general by the European Parliament in its study on 'Tools for ensuring implementation and application of EU Law and evaluation of their effectiveness' (European Parliament, 2013).

[36] The total of reported breaches under the Birds and Habitats Directives is 4,102. It is higher than the total of reported breaches under the Nature sector mentioned previously (2,707). The difference is due to the fact that the main legal basis of these 1,395 cases was not the Birds Directive or the Habitats Directive although it concerned them. These cases were therefore not reported strictly under the "Nature sector" hence there are fewer cases under the "Nature sector" than the number of cases based on the Birds and Habitats Directives. For instance, those based mainly on Directive 85/337/EEC (EIA Directive) were classified under the "Impact sector" although the Birds and Habitats Directives are mentioned as part of the legal basis for the case.

3.3.2 Implementation of the Directives

The European Commission has developed numerous Guidance documents to support implementation[37] and monitors regularly the establishment of the Natura 2000 network through the Natura 2000 Barometer[38]. In addition, the Commission has made use of the infringement procedure, mainly to ensure that deadlines for specific obligations established in the Directives are complied with, but also to address cases of incorrect application, including those raised by citizens.

3.3.2.1 Infringements related to deadlines in implementing specific obligations

The Birds Directive was adopted in 1979. One of the features of this early piece of environmental legislation is the lack of specific timelines for the implementation of the stated obligations. Only two provisions provide for deadlines: Article 18 provides a two-year deadline for transposition of the Directive and Article 12 requires reporting on the implementation every three years[39].

Under the Habitats Directive the situation is different, with additional deadlines established. Similar to the Birds Directive, Article 23 of the Habitats Directive requires Member States to complete transposition of its provisions into their national legal frameworks within two years of its entry into force in 1992. Thereafter, pursuant to Article 17, Member States must report every six years to the Commission on the progress made in the implementation of the Directive. For the designation of sites under Articles 4 and 5 of the Habitats Directive, Member States were required to submit their lists of proposed SCIs to the Commission three years after notification of the Directive, for the Commission to adopt the EU list of SCIs. Pursuant to Article 4(3), the Commission had to establish the list of SCIs within six years of the notification of the Directive – i.e. in 1998. Within six years of the entry of a site onto the Commission list of SCIs, Member States must designate the site as an SAC (Article 4(4) of the Habitats Directive). This timeframe was adapted for each successful wave of accessions to the EU[40]. The 10 countries that joined in 2004, 2007 and 2013 had to submit their list of eligible SCIs to the Commission by the date of accession. In general, the established deadlines for transposition and for implementation were not complied with; not a single Member State fully transposed or implemented its obligations on time[41] (Born et al, 2015). This situation led to several important waves of reported breaches (Born et al, 2015) (Figure 8).

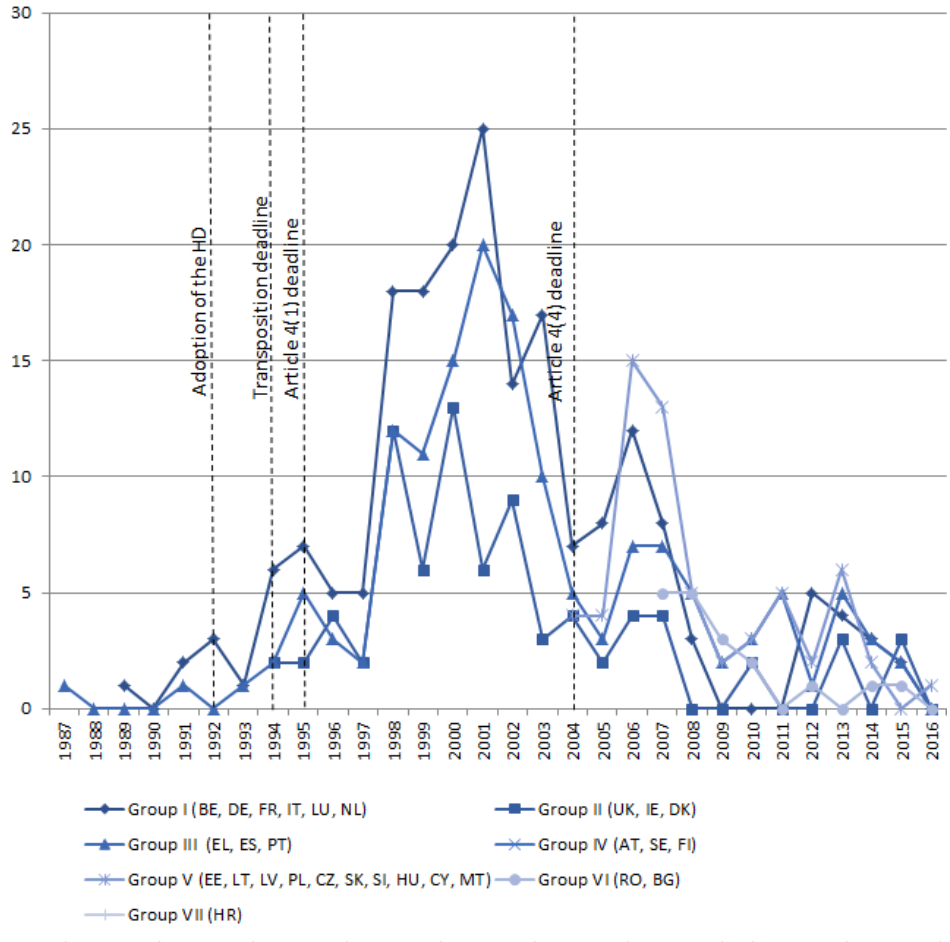
The number of breaches in implementation in all Member State groups (according to their accession dates) peaked once the deadlines for Article 4(1) of the Habitats Directive – identification of proposed SCIs to be submitted to the Commission three years after the notification of the Directive was passed[42]. The Article 4(1) deadline was 1995 for the 'older' Member States (Groups I, II, III and IV on the figure below) and the 'date of accession' for those States that joined the Union in 2004 (Group V in the figure below) in 2007 (Group VI) and in 2013 (Group VII). The Article 4(4) deadline for site designation in the 'older' Member States should have been 2004[43] at the latest; however the

[37] http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm accessed 17.02.16
[38] http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm accessed 17.02.16
[39] The reporting period has subsequently been modified in line with the Habitats Directive.
[40] While transposition and submission of proposals for SCIs is usually required by the time of accession, the deadline for SACs designation would depend on the date of adoption of the list of SCIs by Commission decision. In addition, transitional periods may apply with regards to other obligations based on the Accession Treaties. The timelines may therefore differ from those originally laid down in the Habitats Directive.
[41] http://www.wwf.eu/?2298/Race-to-save-EU-species-too-slow accessed 17.02.16
[42] Article 4(1) of the Habitats Directive requires that '[…] The list shall be transmitted to the Commission, within three years of the notification of this Directive, together with information on each site'.
[43] Article 4(4) of the Habitats Directive requires that 'Once a site of Community importance has been adopted in accordance with the procedure laid down in paragraph 2, the Member State concerned shall designate that site as a special area of conservation as soon as possible and within six years at most […]'.

delays in the adoption of the list of SCIs by Commission decision (following the delays in Member States' proposals of sites) led to changes in the 2004 deadline. For those Member States joining the EU in 2004, the deadline for site designation should have been 2013, if previous deadlines had been met.

While not all Habitats Directives' deadlines have been systematically enforced by the Commission, numerous cases were brought to the CJEU under the Habitats Directive provision requiring Member States' implementation by the deadline specified[44]. Following this wave of proceedings on site selection and designation, and the warning issued by the Commission that funding under the Structural Funds might not be granted to non-compliant Member States, the number of proposed SCIs increased substantially from the late 1990s (Born et al, 2015)[45]. Although the Birds Directive[46] did not set deadlines for site designation, the Habitats Directive's objective to establish the Natura 2000 network has influenced SPAs' designation as well (Born et al, 2015)[47].

Figure 8 Number of infringements to the Habitats Directive over time (per groups of Member States differentiated according to the time of their accession to the EU)*



*The deadlines on the graph are applicable to the groups of Member States from Groups I, II, III and IV.
Source: Commission database on infringements

[44] E.g. Cases C-3/96 (Commission v. Netherlands), C-67/99 (Commission v. Ireland), C-71/99 (Commission v. Germany), C-220/99 (Commission v. France).
[45] p. 237.
[46] E.g. Cases C-166/97 and C-96-98 (Commission v. France), C-117/00 (Commission v. Ireland), C-240/00 (Commission v. Finland), C-202/01 (Commission v. France), C-378/01 (Commission v. Italy), C-166/04 (Commission v. Greece), C-235/04 (Commission v. Spain), C-334/04 (Commission v. Greece).
[47] p.31-55.

3.3.2.2 Other infringement cases subject to deadline: cases related to transposition

Non-designation of sites was not the only example of non-compliance of obligations subject to cut-off dates. Alongside these missed deadlines, the Commission initiated 68 infringement cases for non-communication of transposing measures, 23 of them concerned the Birds Directives exclusively, 14 the Habitats Directive exclusively and the 31 remaining ones concerned both the Habitats Directive and the Birds Directives. In addition, the Commission launched 97 infringement cases for **non-conformity of transposition** of the Nature Directives into Member State law. From those, 43 cases related to transposition of the Birds Directives, 39 to the Habitats Directive and 15 were based on both. These cases were reported mainly in two waves:

- 12 cases between 1998 and 2000;
- 38 cases between 2005 and 2008.

This first wave (1998-2000) shows that while the Commission allowed some time for Member States to transpose the Directives effectively, it appears that the Commission took formal action related to the conformity of transposition measures starting roughly four years after the 1994 deadline (Figure 8) had passed.

About five years after the end of this first wave, new actions by the Commission were taken in a further wave of cases between 2005 and 2008. In 2006 29 cases were opened against 20 Member States on grounds of non-conformity. This last wave illustrates that nearly 15 years after the adoption of the Habitats Directive, the adequate legislative framework required by the Nature Directives was still not in place in Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania, Slovenia, Slovakia and the UK. The delays and the staggered approach observed can be explained by various reasons, including the need to assess late transposition measures, the existence of various non-conform rules which were not notified to the Member States, the need to assess transposition at regional levels, etc.

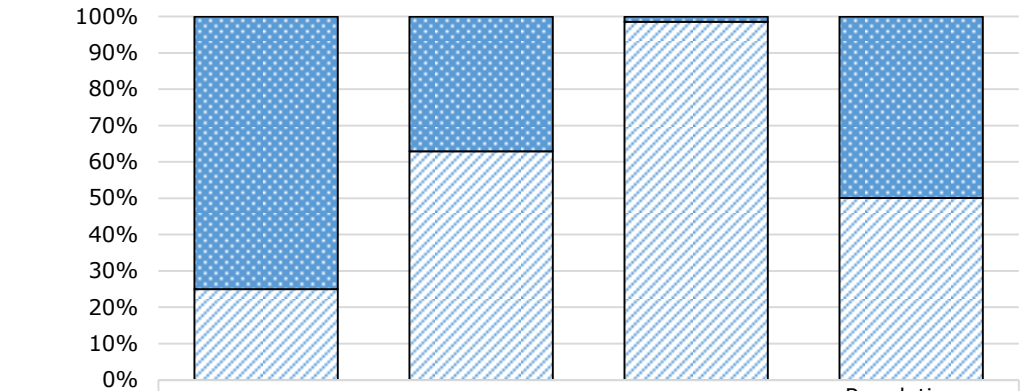
In this context, it can be assumed that the lack of effective and correct transposition had consequences for the practical implementation of the Directives, limiting their potential to achieve their objectives of nature conservation and protection.

3.3.2.3 Infringements on bad application

Enforcing the practical implementation of the Directives is potentially more complex than enforcing procedural obligations with fixed deadlines, given, among other factors, the lack of inspection/investigation powers of the Commission in environmental matters to gather the necessary information on implementation, including infringement cases[48]. Yet, bad application of the Directives accounts for 93% (3,840) of all reported breaches on the Nature Directives are about bad application. From those 601 were treated as infringement cases initiated for bad application (Figure 9). Out of them, 57 are still open at the moment of writing this section: 9 under the Birds Directives, 43 under the Habitats Directives and 5 under both the Birds and the Habitats Directives.

[48] The lack of Commission investigation powers results from the absence of any legal basis recognising it. The need for information on implementation has been recognised by the Commission Communication 'Improving the delivery of benefits from EU environment measures: building confidence through better knowledge and responsiveness' (COM/2012/095 final). While this issue deserves further research and analysis, it is outside the scope of this study.

Figure 9 Types of infringements of the Birds and Habitats Directives per source (as % of total)



	Bad application	Non conformity	Non communication	Regulations, treaties, decision
Complaints	451	36	1	1
COM action	150	61	67	1

Source: Commission database on infringements.

For those cases on reported breaches referred to as bad application, only a limited analysis of their legal basis was possible. The information provided by the Commission on the reported breaches of the Nature Directive only displays the precise provisions on which the reported breach is based in a very limited number of cases. Given these limitations, only certain infringement cases could be identified, namely, under the Birds Directive, Articles 3, 4, 5, 7 and 8, as well as Articles 3, 4, 6, 9, 12 and 16 of the Habitats Directive.

On the basis of this limited sample (103 out of 1,377 reported breaches under the Birds Directive), it appears that site designation and special conservation measures required under Article 4 of the Directive, led to the highest share of reported breaches (58%), followed by the regulation of hunting under Article 7 (25%), and the prohibition of disruptive acts listed in Article 5 (10%).

For implementation of the Habitats Directive, the limited sample (369 out of 2,725 reported breaches) shows that Article 6 is the legal basis for 48% of examined breaches. Site designation under Article 4 comes second (16%), followed by the (lack of) measures adopted pursuant to Article 12 (16%).

The analysis of the reported breaches shows that implementation of the Directives has evolved substantially over time, both in terms of its legal basis - including the Articles listed above – and the number of cases. The substantial reduction of reported breaches permits the conclusion that the transposition and implementation of the Directives has improved, probably due to the lessons learned from implementation, Commission guidance and enforcement actions, as well as CJEU interpretations. The next section examines landmark rulings that shaped the interpretation and implementation of the Nature Directives.

3.3.3 Relevant Case law of the Court of Justice of EU

This section examines landmark rulings on the Nature Directives by the CJEU. Given the considerable number of cases, the section focuses on the main operational objectives of the Nature Directives (as described in section 2.3 of this Study), i.e. listing and designation of sites, protection of undesignated SPAs, necessary conservation measures, avoidance of deterioration and disturbance, Appropriate Assessment of impacts on Natura 2000 sites (AA), species protection (and hunting).

Overall, the CJEU, in interpreting key provisions of the Directives, has contributed significantly to reducing the legal uncertainty surrounding the implementation of specific provisions, along with, in certain cases, trimming the discretionary margin originally left to Member States.

3.3.3.1 Designation of sites under the Birds Directives

While the wording of the Birds Directive left discretionary margin to the Member State regarding the designation of sites according to ecological and scientific requirements, while considering economic and social impacts, the CJEU adopted a strict interpretation of the Directives in several landmark cases that considerably circumscribed the margin of the Member States (Born et al, 2015). Firstly, in the *Leybucht Dykes* case, the CJEU held that, under the Birds Directive, Member States do not have the same discretion for modifying or reducing the extent of already designated SPAs as they do for designating new SPAs[49]. The power of the Member States to reduce the extent of SPAs can be justified only on exceptional grounds corresponding to a general interest which is superior to the general interest represented by the ecological objective of the Directive. In that context, the economic and recreational requirements referred to in Article 2 have no role. Secondly, the ruling of the CJEU in the *Santoña Marshes* case indicated that Member States might have a limited margin of discretion when ornithological elements substantially support the need for designation of certain sites as SPAs[50]. The *Lappel Bank* case went further, finding that ornithological criteria alone were deemed acceptable to guide Member States in the designation of the boundaries of SPAs[51].. This landmark ruling was later confirmed in Case Commission v. Netherlands C-3/96 and again in C-418/04, restating that the ornithological criteria for the classification and demarcation of the boundaries of SPAs must have scientific basis[5253]. A recent case C-141/1 has confirmed this ruling requiring that the designation of the entire SPA is according to ornithological criteria and that its protection by ensuring that certain wind energy projects were developed respecting the conservation objectives of the SPA[54].

3.3.3.2 Site selection and designation under the Habitats Directive

The CJEU took a similar approach for the Habitats Directive than for the Birds Directive and stated that taking economic, social and cultural requirements into account as well as regional and local characteristics when establishing the initial list of candidate SCIs could jeopardise the overall objective of achieving a coherent European ecological network of

[49] Case C-57/89, Commission v. Germany [1991] ECR I-883.
[50] Case C-355/90, Commission v. Spain [1993] ECR I-4221.
[51] Case C-44/95, Regina v. Secretary of State for the Environment) [1996] ECR I-3605.
[52] Case C-3/96, Commission v. Netherlands [1998] ECR I-3031.
[53] Case C-418/04, Commission v. Ireland 2007 ECR I-10947.
[54] Case C-141/14, Commission v. Bulgaria [2014] OJ C 159.

SACs. This interpretation was reiterated in the *Stadt Papenburg* case[55] in the context of the designation of SACs (Born et al, 2015) after previous cases such as cases C-67/99[56]; C-71/99[57]; C-220/99[58] or C-117/03[59].

In these cases the Court provides an interpretation concerning the protection of proposed SCIs by which protected measures prescribed in Articles 6(2), (3) and (4) of the Habitats Directive are required for sites that are on the list of sites selected as SCIs. In contrast with the strict interpretation for the listing and designation of sites, the Habitats Directive includes a derogation mechanism which allows damaging projects to be developed in or near Natura 2000 sites if such projects satisfy the conditions established in Article 6(3) and (4). Pursuant to those Articles, the projects cannot be authorised if the AA confirms that they negatively affect the integrity of the site, unless there are no reasonable alternatives and the project corresponds to imperative reasons of overriding public interest. In such cases, compensatory measures are compulsory. The Habitats Directive, therefore, included from the outset a mechanism designed to provide Member States with some flexibility once sites had been designated.

The Court considers that by virtue of the Directive, Member States are required to ensure certain levels of protection for those sites eligible for designation as SCIs and, therefore, those sites should be subject to 'protective measures that are appropriate in light of the Directive's conservation objective, for the purpose of safeguarding the relevant ecological interest which those sites have at national level'[60] (*Dragaggi and others*).

In addition the Court clarified that the obligation to establish sites under the Birds and Habitats Directives applies beyond territorial waters and extends to all marine areas where Member States exercise sovereign rights[61].

3.3.3.3 Protection of undesignated SPAs

For the sites that it regulates, given that neither economic nor recreational requirements could justify changing the environment (*Levbucht Dykes*), Article 4(4) of the Birds Directive did not allow Member States the flexibility described by Article 6(4) of the Habitats Directive (Born et al, 2015). Designation of SPAs thus amounted to more significant constraints on future projects than their equivalent under the Habitats Directive. Article 7 of the Habitats Directive harmonised the situation of classified sites by replacing the obligations of the Birds Directive with the obligations of Article 6(2), (3) and (4) of the Habitats Directive. The situation was left unclear for sites that should have been designated as SPAs, but for which the Member State had not yet met its designation obligations.

The CJEU adopted an approach guided by the conservation and protection purposes enshrined in the Birds Directive. In the *Basses Corbieres* case, the Court took the view that Member States should not in any way be rewarded for failure to designate a site[62]. In the view of the Court, such a reward would be granted if Member States could benefit from the flexibility mechanisms foreseen by the Habitats Directive even for sites whose designation was overdue. Those areas not yet classified as SPAs - but which should have been so classified – do not fall under Article 6(2) to (4) of the Habitats Directive but continue to fall under the regime governed by Article 4(4) of the Birds Directive. The Court's reasoning was two-fold. Firstly, the objective of effective protection should prevail when no explicit derogation (overriding public interest) was foreseen. Secondly, the potential to benefit from the flexibility mechanisms of the Habitats Directive once a site has been

[55] Case C-226/08, Sdadt Papenburg v. Germany [2010] ECR I-131.
[56] Case C-67/99, Commission v. Ireland [2001] ECR I-05757.
[57] Case C-71/99, Commission v. Germany [2001] ECR I-05811.
[58] Case C-220/99, Commission v. Germany [2001] ECR I-05831.
[59] Case C-117/03, *Dragaggi and others*[2005] ECR I-00167.
[60] Case C-117/03, *Dragaggi and others* [2005] ECR I-00167.
[61] Case C-6/04, Commission v. United-Kingdom [2005] ECR I-9017.
[62] Case C-374/98, Commission v. France

designated as SPA was seen by the Court as an additional incentive for Member States to finally comply with their designation obligations (Born et al, 2015).

3.3.3.4 Necessary conservation measures and avoidance of deterioration and disturbance

While much of the early case law of the CJEU related to site selection and designation of sites, since 2000 an increasing number of landmark rulings relate to site protection obligations under Article 6 of the Habitats Directive, requiring Member States to provide regular conservation action and protection measures once sites are on the list of SCIs or designated as SACs. Obligations under Article 6 have gained importance, and the Court provided significant guidance on the interpretation of these four paragraphs.

The adoption of necessary conservation measures under Article 6(1) is, according to the Court, a systematic obligation that leaves no latitude to Member States for the adoption of necessary, adapted[63] and sufficient measures[64].

Site designation – even if supported by necessary conservation measures under this provision – does not suffice to halt the decline of habitats and species resulting in part from intense farming, urbanisation, infrastructure construction, irrigation, holiday and leisure activities (Fahrig, 2003). Member States must adopt measures preventing deterioration, covering all types of disturbances that are significant in relation to the objectives for which the SACs are designated[65]. This might require the adoption of measures intended to avoid external man-caused disturbances (Article 6(2) of the Habitats Directive), as well as to prevent developments that may affect the conservation status of species and habitats in SACs under Article 6(3).

The Court stated that Article 6(2) and 6(3) of the Habitats Directive target the same result. Authorisation of a plan or project granted in accordance with Article 6(3) of the Habitats Directive means that it is not likely that the plan or project will adversely affect the integrity of the site concerned and, consequently, that it will not give rise to deterioration or significant disturbances within the meaning of Article 6(2) (*Waddenzee case*)[66].

The Court went further and specified that activities, such as recreational activities of fishing or hunting, could not be generally regarded as not causing disturbance in order to justify their systematic exclusion from the obligation to avoid deterioration and disturbance of species, or to assess their impacts on Natura 2000 sites under Article 6(3) of the Habitats Directive[67].

The Court has also restated that pursuant to Article 7 of the Habitats Directive, the legal protection system of SPAs 'must also guarantee the avoidance therein of the deterioration of natural habitats and the habitats of species as well as significant disturbance of the species for which those areas have been designated'[68].

[63] Case C-508/04, Commission v. Austria [2007] ECR I-3787.
[64] Case C-293/07, Commission v. Greece [2008], ECR I-182.
[65] Case C-75, Commission v. Luxembourg [2003] ECR I-1585.
[66] Case C-127/02, Waddenzee.
[67] Case C-241/08, Commission v. France [2010] ECR I-1967.
[68] Case C-415/01 Commission. V Belgium [2003] I-02081.

3.3.3.5 Appropriate Assessments and conditions imposed on projects that received negative assessments

Natura 2000 sites may be affected not only by activities but also development plans or projects subject to permitting procedures, either inside or outside SCIs, SACs or SPAs. Drafted against the backdrop of the *Leybucht Dykes* case in 1989, Article 6(3) and (4) of the Habitats Directive embedded flexibility for economic considerations to prevail over nature conservation and protection. Article 6(3) requires AAs of the implications for the site of all projects likely to have a significant effect, in view of the site's conservation objectives. Should an AA be negative, the project must stop unless it satisfies the triple condition of Article 6(4): no alternative solution exists, it corresponds to imperative reasons overriding public interest and compensatory measures are taken by the Member State to ensure the overall coherence of the Natura 2000 network[69]. The implementation of these provisions evidenced the need for clarifying the relative vagueness of Article 6(3) and the terms of the flexibility provided under Article 6(4). The CJEU had an essential role in refining the obligations of Article 6(3) and (4).

With regards to the scope of the obligation, the CJEU provided abundant case law on the plans and projects that are covered by the wording of Article 6(3). Many justifications put forward by Member States for the exclusion of certain activities from the scope of Article 6(3) were considered irrelevant or insufficient, e.g. the existence of periodically issued permits[70], the limited use of water passing through the site[71], the location of the project (inside or outside the site)[72], the small size of the project[73], the low value of the project[74] or the type of work[75]. The Court also clarified the correct interpretation of the term 'likely to have a significant effect'. In Case C-127/02, the Court ruled that a project should be considered likely to have a significant effect whenever the plan or project is likely to undermine the conservation objectives of the site concerned. As stated above, the Court clarified in case C-241/08 that exempting systematically harmful activities such as fishing or hunting from the protection regime for Natura 2000 sites would seriously jeopardise progress towards achievement of the objectives of the Habitats Directive.

The wording of the Habitats Directive remained vague on the content and methodology required for the conduct of AAs. Addressing abuses of that flexibility, the CJEU specified those requirements which AAs are expected to fulfil. The Court asserted that AAs must be based on the best scientific knowledge in the field[76]. In the same ruling, the Court further strengthened the conditionality of obtaining positive assessment by ruling that competent authorities must approve a plan or project only when no reasonable scientific doubt remains as to the absence of adverse effect on the integrity of a site[77]. In a later judgement, the Court specified that the integrity of a site was considered not to be adversely affected where a plan or project did not present risks of lasting harm to the ecological characteristics of sites hosting priority natural habitat types[78]. In defining best

[69] Article 6(4), first indent, 'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.'
[70] Case C-127/02, Waddenvereniging and Vogelbeschermingsvereniging [2004], ECR I-7405.
[71] Case C-98/03, Commission v. Germany [2006], ECR I-53.
[72] Case C-98/03, Commission v. Germany [2006], ECR I-53.
[73] Case C- 6/04, Commission v. United-Kingdom [2005], ECR I-9017.
[74] Case C-256/98, Commission v. France [2000] ECR I-2487.
[75] *Id. Ibidem.* Regarding maintenance work that require AA, see Case C-226/08, Sdadt Papenburg v. Germany [2010] ECR I-131. Regarding work included in Natura 2000 conservation contracts see Case C-241/08, Commission v. France [2010] ECR I-1697.
[76] Case C-127/02, Waddenvereniging and Vogelbeschermingsvereniging [2004], ECR I-7405.
[77] Case C-127/02, Waddenvereniging and Vogelbeschermingsvereniging [2004], ECR I-7405.
[78] Case C-258/11 Peter Sweetman and Others v An Bord Pleanála (2013).

scientific knowledge in order to remove all reasonable scientific doubts, the AAs must contain complete, precise and definitive findings and conclusions[79] based on reliable and up-to-date data[80].

The Habitats Directive allows for Member States to derogate the obligation of prohibiting plans or projects that receive a negative assessment. Conditions are imposed by three cumulative tests: (i) the absence of alternative solutions; (ii) the existence of imperative reasons of overriding public interest ('IROPI') for the project; and (iii) the adoption of all compensatory measures necessary to ensure the protection of the overall coherence of the Natura 2000 network. The CJEU rendered judgements on each of these tests. On the absence of alternative solutions, the Court asserted that use of derogation to the general rule entails a strict interpretation of its implementing conditions, therefore consideration of alternative solutions by competent authorities must be demonstrable[81]. On reasons of overriding public interest, the Court held that 'the implementation of a plan or project must be both "public" and "overriding", meaning that it must be of such importance that it can be weighed up against the Directive's objective of the conservation of natural habitats and wild fauna and flora'[82]. Finally, on compensatory measures, the Court stated that the extent and scale of the works involved in the project are factors that must be taken into account in order to identify not only the adverse effect of the project, but also the necessary compensatory measures[83].

3.3.3.6 Hunting and species protection

Both Directives require specific measures to be taken to ensure the protection of species, including the surveillance of protected habitats and species under Article 11 of the Habitats Directive, and a system to prevent the incidental capture and killing of animal species listed in Annex IV(a) of the Habitats Directive. Despite the margin of discretion left to Member States by way of possible derogations under Article 9 of the Birds Directive and Article 16 of the Habitats Directive, these aspects of nature protection often seem to be either overlooked or poorly applied by many Member States. The Commission reported in 2003 that only 'some' national legislations were strict on the implementation of Article 11 of the Habitats Directive, with little compliance on the systems of species protection (European Commission, 2003)[84].

The CJEU produced several judgements, particularly with regard to the use of derogations. Article 9 of the Birds Directive allows Member States to derogate from the prohibitions and other provisions concerning marketing and hunting. Such derogations are possible on three cumulative conditions: (i) no other satisfactory solution exists (Article 9(1)); (ii) the derogation is based on one of the reasons listed in Article 9(1); (iii) the formal conditions of Article 9(2) are complied with[85]. The Court specified that such derogation should not be so general that it does not reflect the higher-ranking interests of public health and security. Rather, such derogations must be specific and limited in scope[86]. One of the grounds for derogation listed in Article 9(1) is the judicious use of certain birds in small numbers under strictly supervised conditions and on a selective

[79] Case C-304/05, Commission v. Italy [2007], ECR I-7495.
[80] Case C-43/10, Commission v. Greece (Nomarchiaki Aftodioikisi Aitoloakarnanias e.a) [2012]; Case C-404/09, Commission v Spain [2011] ECT I-11853.
[81] C-239/04 Commission v. Portugal [2006] ECR I-10183.
[82] C-182/10 Solvay and Others v. Region Wallonne [2012].
[83] C-43/10 Commission v. Greece (Nomarchiaki Aftodioikisi Aitoloakarnanias e.a) [2012].
[84] European Commission, Report on the implementation of the Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, COM(2003) 845 final, available at: http://ec.europa.eu/prelex/detail_dossier_real.cfm?CL=en&DosId=187958
[85] According to Article 9(2) of the Birds Directive the derogations must specify: the species which are subject to the derogations; the means, arrangements or methods authorised for capture or killing; the conditions of risk and the circumstances of time and place under which such derogation may be granted; the authority empowered to declare that the required conditions obtain and to decide what means, arrangements or methods may be used, within what limits and by whom; and the controls which will be carried out.
[86] Case C-247/85, Commission v. Belgium [1987] ECR I-3029.

basis. In this regard, the Court held that 'the capture and sale of wild birds with a view to keeping them for use as live decoys or for recreational purposes in fairs and markets may constitute judicious use'. However, the Court added that such derogation would only be allowed 'if there is no other satisfactory solution. The breeding and reproduction of protected species in captivity may constitute such a solution if they prove to be possible.' Local interests are not among the reasons that could justify derogations[87]. Based on Article 9, the Court held that derogations must always cover specific situations and comply with the mentioned requirements. For example, if the stated conditions are met, derogations would be possible for species specified in national legislation which 'cause serious damage to crops and orchards or are responsible for pollution and noise in towns or certain regions'[88].

In addition to Article 7(4) of the Birds Directive, which prohibits hunting during rearing periods and the various stages of reproduction and dependency and, in the case of migratory species, during their return to their rearing grounds, which the CJEU has interpreted as seeking to 'secure a complete system of protection in the periods during which the survival of wild birds is particularly under threat'. On this basis, the Court held that 'protection against hunting activities cannot be confined to the majority of the birds of a given species, as determined by average reproductive cycles and migratory movements'.

With respect to Article 12 of the Habitats Directive, which prohibits inter alia the deliberate disturbance of animal species listed in Annex IV(a) and the deterioration or destruction of breeding sites or resting places, the Court held that the existence of measures on the use of a marine park is not necessarily sufficient to prevent the deliberate disturbance of protected species[89]. The Court strongly emphasised the importance of the preventive character of the measures to be taken under this Article and the proportionality of requiring that disturbance is of unintentional character[90]. The Court went on to highlight that 'strict systems of species protection' means ensuring adequate protection of species through the adoption of coherent and coordinated measures[91].This position was reiterated with respect to Articles 15[92] and 16 of the Habitats Directive[93].

3.4 Conclusions

While Member States are primarily responsible for implementing EU law, the Commission monitors implementation and enforces EU law once a breach has been identified. Ultimately, the quality of implementation remains a competence and duty of the Member States and their national administrations. However, as failure to comply with the obligations limits the potential of the Nature Directives to achieve their full benefit, the role of the Commission to improve implementation and promote enforcement becomes critical. The Commission has developed numerous Guidance documents to support Member States' implementation[94] and monitors regularly the establishment of the Natura 2000 network[95]. In addition, the Commission, as Guardian of the Treaties, has taken numerous formal actions against non-compliant Member States, including cases on non-conformity of the national legislation with the Directives, non-compliance with obligations subject to deadlines established by the Directives, and on bad application of the Directives' provisions.

[87] Case C-10/96, Ligue royale belge pour la protection des oiseaux et Société d'études ornithologiques AVES / Région wallonne, [1996] ECR I-6775.
[88] Case C-247/85, Commission v. Belgium [1987] ECR I-3029.
[89] Case C-103/00, Commission v. Greece [2002], ECR I-1147.
[90] Case C-183/05, Commission v. Ireland [2007] ECR I-137.
[91] Case C-518/04, Commission v. Greece [2006] ECR I-00042.
[92] Case C-6/04, Commission v. United-Kingdom [2005] ECR I-9017.
[93] Case C-98/03, Commission v. Germany [2006] ECR I-53.
[94] http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm accessed 17.02.16
[95] http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm accessed 17.02.16

Alongside the Commission's enforcement actions taken at their own initiative, there is a remarkable longstanding interest in the Nature Directives by citizens who report breaches to the European institutions at a higher rate than in other policy sectors or environmental areas.

The number of reported breaches under the Birds and Habitats Directives point to considerable interest among citizens in the area, but also indicates that implementation of the Directives at national and regional levels has been challenging. However, the analysis of the reported breaches shows that implementation of the Directives has evolved substantially over time, both in terms of its legal basis and the number of cases. The substantial reduction of reported breaches permits the conclusion that the transposition and implementation of the Directives has improved, probably due to the lessons learned from experience (implementation), guidance and enforcement actions, and also thanks to the interpretation by the CJEU.

The margin of uncertainty regarding the interpretation and implementation of some of the provisions of the Nature Directives has been reduced by numerous judgements of the CJEU. This case law considerably helps Member States and private entities to understand their legal obligations under the Nature Directives and improves harmonised implementation.

We are currently in a position where the terrestrial Natura 2000 network is regarded by the Commission as largely complete, with full designation about to be completed[96]. The adoption of conservation measures, including management plans if Member States deem them necessary, should provide the right conditions for improved conservation results and better integration of socio-economic measures and policies.

Notwithstanding this evolution, a compliance deficit remains, as highlighted by the high share of reported breached in this area, with continued enforcement action required to ensure that the expected results of the Nature Directives are fully achieved[97]. Most obligations subject to deadlines should be implemented by now and enforcement will move to focus on bad application of the Directive's protection measures, which requires better information on implementation at EU level, as recognised by the Commission[98].

[96] Natura 2000 Barometer: http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm
[97] European Commission, 32nd Annual Report on Monitoring the Application of EU Law (2014), COM (2015) 329, 2015.
[98] Commission Communication 'Improving the delivery of benefits from EU environment measures: building confidence through better knowledge and responsiveness' (COM/2012/095 final).

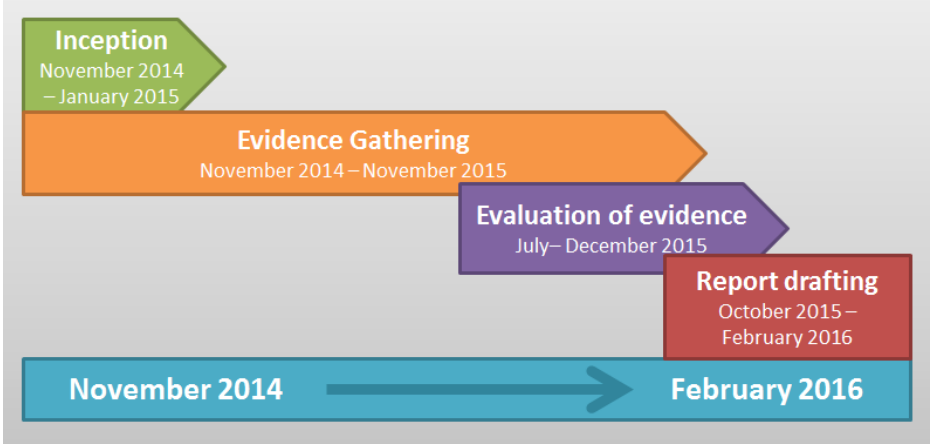
4 Methodology

The methodology for carrying out the evaluation study was developed in line with the need for a transparent and robust examination of the best available evidence and the recently adopted Commission's Better Regulation guidelines and toolbox. The methods used to gather, collate and analyse information are presented in this section, as well as limitations to the research and the specific challenges encountered.

The methodology was developed and carried out by the consortium in close cooperation with the Commission – DG Environment unit B.3 as the Fitness Check and contract manager, as well as the Fitness Check Steering Group[99]. DG Environment led and coordinated contributions to the final design of the methodology and to concrete outputs of the project, such as the evidence gathering questionnaire and the online public consultation questionnaire. The Steering Group met at regular intervals and provided written feedback on the main study deliverables – the inception and interim reports (including the evaluation methodology), the emerging findings report for the conference and the draft versions of the final report.

Work on the study took place from November 2014 – February 2016, and consisted of four overlapping phases: inception, evidence gathering, evaluation of evidence and report drafting.

Figure 10 Project phases



4.1 Analytical approach to the evaluation

The primary purpose of this evaluation study is to determine the extent to which the Nature Directives are fit for purpose, by examining their effectiveness, efficiency, relevance, coherence and EU added value. The legislation has been evaluated by answering the evaluation questions provided for each criterion in the Fitness Check mandate. These questions are listed in the box below. For the purposes of this report, each evaluation question has been given a unique letter and number code used by the team to identify the questions during the evaluation process. Some questions have been broken up or grouped together from the original evaluation mandate to improve clarity and logic both in the evidence gathering questionnaire used for consultation of stakeholders and in this study[100].

[99] The Steering Group for this Fitness Check was based on the pre-existing Biodiversity Inter-service Group but was limited to the relevant services: DGs AGRI, CLIMA, ENER, ENTR (GROW), HRC, MARE, MOVE, REGIO, SG, SJ, as well as representatives of the evaluation and impact assessment unit in DG ENV.

[100] Questions Y.3, Y.4 and Y.5 under efficiency; C.2/C.3 and C.4/C.5 under coherence; and AV.1 and AV.2 under EU added value were originally grouped together in the evaluation mandate but presented separately in

Box 3 The Fitness Check evaluation questions as presented in this study

Effectiveness

- S.1. What progress have Member States made over time towards achieving the objectives set out in the Directives and related policy documents? Is this progress in line with initial expectations? When will the main objectives be fully attained?
- S.2. What is the contribution of the Directives towards ensuring biodiversity? In particular, to what extent are they contributing to achieving the EU Biodiversity Strategy objectives and targets?
- S.3. Which main factors (e.g. implementation by Member States, action by stakeholders) have contributed to, or stood in the way of, achieving these objectives?
- S.4 Beyond these objectives, have the Directives led to any other significant changes, both positive and negative?

Efficiency

- Y.1. What are the costs and benefits (monetary and non-monetary) associated with compliance with the Directives in the Member States and in the EU?
- Y.2. Are availability and access to funding a constraint or support in the implementation of the Directives?
- Y.3. If there are significant cost differences between Member States, what is causing them?
- Y.4. Can any costs be identified that are out of proportion with the benefits achieved? In particular, are the costs of compliance proportionate to the benefits brought by the Directives?
- Y.5. Can good practices, particularly in terms of cost-effective implementation of the Directives in Member States, be identified?
- Y.6. What are likely to be the costs of non-implementation of legislation?
- Y.7. Taking account of the objectives and benefits of the Directives, is there evidence that they have caused unnecessary administrative burden?
- Y.8. Is the knowledge base sufficient and available to allow for efficient implementation of the Directives?

Relevance

- R.1. Are the key problems and concerns facing species and habitats of EU conservation concern still addressed by the EU nature legislation?
- R.2. Have the Directives been adapted to technical and scientific progress?
- R.3. How relevant are the Directives to achieving sustainable development?
- R.4. How relevant is EU nature legislation to EU citizens and what is their level of support for it?
- R.5. What are citizens' expectations for the role of the EU in nature protection?

Coherence

- C.1. To what extent are the objectives set up by the Directives coherent with each other?
- C.2. To what extent are the Directives satisfactorily integrated and coherent with other parts of EU environmental law/policy, including environmental impact assessment (EIA) and strategic environmental assessment (SEA)?
- C.3. Is the scope for policy integration with other policy objectives (e.g. water management, flood protection, marine, and adaptation to climate change) fully exploited?
- C.4. To what extent do the Nature Directives complement or interact with other EU sectoral policies affecting land and water use at EU and Member State level (e.g. agriculture, regional and cohesion, energy, transport, research, etc.)?
- C.5. How do these policies affect positively or negatively the implementation of the EU nature legislation?
- C.6. To what extent do they support the EU internal market and the creation of a level playing field for economic operators?
- C.7. To what extent has the legal obligation of EU co-financing for Natura 2000 under Article 8 of the Habitats Directive been successfully integrated into the use of the main sectoral funds?
- C.8. Are there overlaps, gaps and/or inconsistencies that significantly hamper the achievements of the objectives?
- C.9. How do the Directives complement the other actions and targets of the EU Biodiversity Strategy to reach biodiversity objectives?
- C.10. How coherent are the Directives with international and global commitments on nature and biodiversity?

EU added value

- AV.1. What has been the EU added value of the EU nature legislation?
- AV.2. What would be the likely situation in the case of there having been no EU nature legislation?
- AV.3. Do the issues addresses by the Directives continue to require action at EU level?

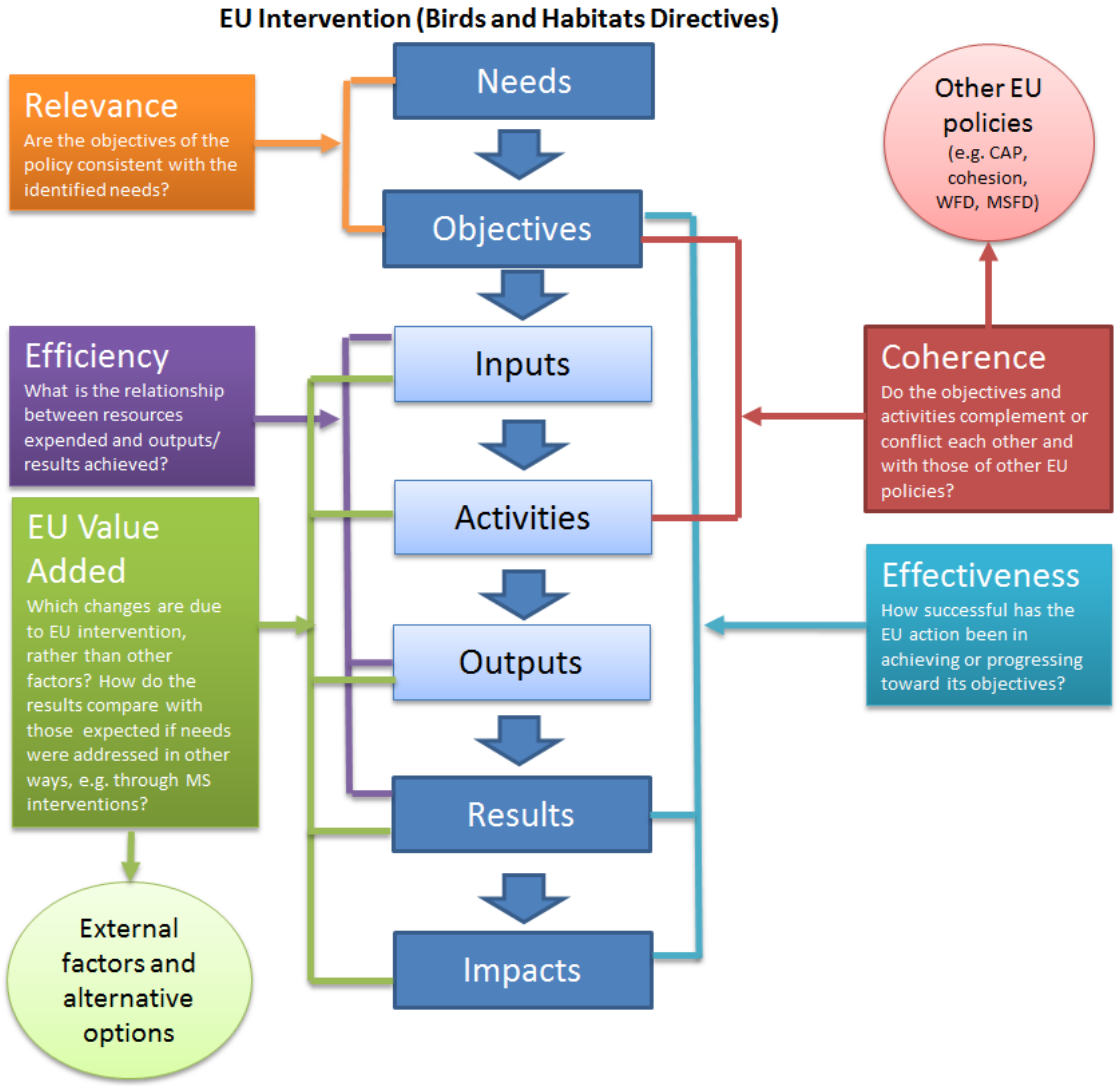
the evidence gathering questionnaire. The responses to questions C.4/C.5 and AV.1/AV.2 have been grouped together in this study.

The evaluation questions stem from the model of intervention logic presented in Section 2.3 of this study. They guide the evaluation of each of the five main criteria by specifying the information and analysis required to develop findings and conclusions. As explained in the Commission's Better Regulation guidelines and toolbox, each of the evaluation criteria – effectiveness, efficiency, relevance, coherence and EU added value – has logical links to the various stages of the intervention logic. These links are described below and illustrated in Figure 11 below.

- **Effectiveness** considers how successful the legislation has been in achieving or progressing towards its objectives. It assesses the extent to which progress has or has not been achieved, and the significant factors that have contributed towards or inhibited progress. As illustrated in Figure 11, it looks at the relationship between the results and impacts of the implementation of legislation and the objectives.
- **Efficiency** considers the resources that have been used to achieve progress, and considers costs and benefits as well as analysis of administrative burden. As illustrated in Figure 11, effectiveness focuses on the relationship between inputs and the produced outputs and results.
- **Relevance** looks at the relationship between the needs and problems in society and the objectives of the legislation, as illustrated in Figure 11. It considers whether the objectives and requirements of the legislation are still valid, necessary and appropriate.
- **Coherence** looks at how different actions work together, looking at the extent to which the required actions are consistent with objectives. In the case of this evaluation, coherence assesses the extent to which the Nature Directives are coherent internally and with each other. Coherence also assesses the extent to which the Nature Directives are coherent with other relevant EU policies or legislation.
- **EU added value** looks for changes that have occurred due to EU intervention, rather than other factors such as external influences or activities that might have resulted from national and regional laws and policies in the absence of the EU legislation. As illustrated in Figure 11, this examines linkages between the inputs, activities, outputs, results and impacts of the legislation and relates them to external factors. In doing so, it takes into account many of the findings of the other criteria, and examines causality to draw conclusions about the performance of the legislation and the justification of intervention at EU level.

These criteria and their links to the intervention logic have governed the evaluation process, including design, research, synthesis and analysis.

Figure 11 Intervention logic of the Fitness Check



To interpret and identify research needs for each evaluation question, the team developed judgement criteria. These clarify, in an objective way, what needs to be assessed in order to effectively answer the evaluation question. For some questions, the judgement criteria are very specific (e.g. 'maintenance of bird populations in accordance with Article 2 of the Directive') while for others they are more general (e.g. 'sectoral policies are implemented in practice in a way that is compatible with the Nature Directives'). These general criteria allowed the team to refine more specific points as shown by the evidence collected for each question.

The judgement criteria also allowed the team to further develop the specific data, information and analysis needs for each question. This was developed for each question through so-called 'scoping sheets'[101]. These were used mainly during the inception and early evidence gathering stages of the project to plan the evidence gathering required for each question, including the initial review of literature and to refine the judgement criteria further, so that they would provide an accurate framework for answering the question during the evaluation phase. The judgement criteria defined in the scoping sheets for each evaluation question were agreed by the Commission (DG Environment,

[101] The scoping sheets for each evaluation question were provided to the Commission in the project Inception Report. These formed the basis of the question responses included in Sections 5 – 9 of this study.

Steering Group) at the inception phase and are reflected in the 'introduction and approach' section for each question in sections 5 – 9 of the study. In essence, the judgement criteria provided the specific points on which the responses to the questions would need to focus. This kept the research and evaluation within scope and to-the-point. At the same time, the criteria were broad enough to allow relevant sub-issues to emerge based on the contents of the evidence assessed. The scoping sheets allowed the analysts to explore the meaning of the criteria further, based on literature and internal team discussions. It also allowed the team, at a later stage, to formulate expectations from the stakeholder consultation and select legal and policy documents and additional literature.

In summary, this analytical approach has sought to ensure consistency with the Commission's approach to Better Regulation as described in the Better Regulation guidelines and toolbox. It ties together the intervention logic, which describes how the legislation was intended to work at the time it was drafted, with the five Fitness Check criteria that have been established to assess the extent to which the legislation remains fit for purpose. The evaluation questions as defined in the mandate guide the evaluation by specifying how the Nature Directives should be assessed with regard to the Fitness Check criteria. The judgement criteria defined for each evaluation question guided the collection and analysis of data and information and the development of sound, evidence-based conclusions. This process is described further in this section and detailed in the response for each evaluation question in sections 5 – 9 of the study.

4.2 Evidence gathering

The evidence gathering process aimed to ensure that the evaluation was based on the best available evidence, including both factual and opinion-based information, with the transparency of the process being a key objective. Between November 2014 and November 2015, the study team gathered information and data from different sources and stakeholders across the EU. The main methods used were desk research and consultation, which included distribution of an evidence gathering questionnaire to stakeholders, meetings and focus groups, an online public consultation and a high-level conference.

4.3 Desk research

A two-phase process of desk research, including the review of legal and policy documents, studies, reports, datasets and other written evidence, formed a major basis for the analysis. It comprised an initial review of literature during the first phase of the evidence gathering stage, which provided a strong evidence base to refine the analytical approach for each evaluation question. The initial desk research enabled the development of a first list of relevant literature which was made available to the public through the Commission's website for transparency purposes and to facilitate contributions. A second, more targeted review of literature was carried out during the later part of the evidence gathering stage, in parallel with the evaluation stage, in order to verify and complement the information gathered from the consultation activities.

The literature was identified from the following sources:

- Documents mentioned in the tender specifications for the contract.
- European Commission (contributions from DGs).
- Existing databases held by team members.
- An online bibliographic search (which identified over 600 publications on the Birds Directive and/or Habitats Directive and/or the Natura 2000 sites).
- Stakeholders' responses to the evidence gathering questionnaire.

- Literature provided by the public via the Commission's website for this Fitness Check based on the first draft list which was made available for this purpose[102].

During the project the relevant documents (over 1,800) were tracked in the Reference Database, an online tool accessible from various locations. The Reference Database contains results of the desk research during the evidence gathering phase, including the contributions provided by the public to the list uploaded on the Commission website, as well as the references provided by the stakeholders through the evidence gathering questionnaires. The Reference Database enabled tracking and categorisation (e.g. by key word or relevant evaluation question) of the documents for easy reference by the evaluation team. The Reference Database also facilitated citations within the study report and the development of the bibliography in the report. Supplementary literature responding to additional research needs identified during the evaluation phase has been included in the study bibliography following the same citation style, however, this not contained in the reference database.

4.3.1 Consultation

A broad-ranging and multi-faceted consultation was carried out, given the complex, multi-disciplinary and multi-sectoral nature of the topic. The consultation strategy was designed and planned by the evaluation team - in close consultation with the Commission and the steering group - and it followed the requirements of the Tender specifications. This involved setting objectives, identifying stakeholders and designing the specific methods and tools to be used. A webpage was set up by DG Environment and maintained during the project period with information about consultation activities and results[103].

The objectives of the consultation derived from the mandate for the Fitness Check, which cited the need to assess the views of key stakeholder groups as one of its overall aims[104]. Based on this, the specific objectives of the consultation were to:

- Reach key stakeholders in all EU Member States, as well as EU level organisations, including the Commission.
- Collect views from a variety of perspectives (e.g. governmental authorities responsible for nature, as well as sectors that interact with the Nature Directives; business/private sector; and civil society groups).
- Address stakeholders in a transparent and clear manner, allowing them to provide views on all aspects of the evaluation according to their knowledge and experience.
- Encourage evidenced responses to the extent possible (as opposed to opinions) and solicit additional documentary evidence, where required.
- Allow for clarification requests where responses were not completely clear or where useful additional information or evidence might be available.
- Entail a manageable process within the time and resources available for the evaluation.
- Enable meaningful synthesis and analysis of the responses received.

[102] The working list of reference documents that was published on the Commission's website for the Fitness Check in April for public input is available at:
http://ec.europa.eu/environment/nature/legislation/fitness_check/
The full reference database was provided to the European Commission at the end of the study contract.
[103] http://ec.europa.eu/environment/nature/legislation/fitness_check/ accessed 17.02.16
[104] Available at: http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/Mandate%20for%20Nature%20Legislation.pdf accessed 7.02.16

- Demonstrate confidence - both within the study team and externally - that the evaluation is based on the best available evidence and that all stakeholders had the opportunity to input to the process.

Based on this challenging set of objectives, the following consultation strategy focusing on five complementary activities was designed and implemented:

- A **targeted stakeholder consultation**, addressed selected stakeholders in all Member States and at EU level through a specifically designed 'evidence gathering questionnaire'.
- **National missions to 10 representative Member States**, followed up on the questionnaires and to broaden the scope of the stakeholder consultation and gather additional evidence..
- **Focus group and Commission meetings,** with EU level organisations and key Commission services enabled deeper discussion of relevant themes.
- **An online public consultation,** which allowed interested public and stakeholders to express their views. In total 552,472 replies were received, the largest response the Commission has ever received to an online consultation.
- **A high-level conference,** attended by approximately 400 stakeholders and high-level officials at national and EU level, to present emerging findings and collect relevant feedback.

Each of these activities is described in more detail below.

4.3.1.1 Targeted stakeholder consultation – the evidence gathering questionnaire

The targeted stakeholder consultation addressed key stakeholders from all 28 Member States, as well as the relevant EU level organisations, giving them the opportunity to directly address each of the evaluation questions in writing through an 'evidence gathering questionnaire'. The selection of the target stakeholders was carried out by the Commission, with input from the evaluation team.

Four stakeholders were selected from each Member State to receive the questionnaire: the statutory nature protection authority, one other public authority from a relevant sector (e.g. agriculture, energy, etc.), one nature conservation NGO, and one representative of the private sector or relevant business. The targeted stakeholders in each Member State were selected based on the importance of a sector or industry for the Member State, with an effort to represent all relevant sectors and industries across the total targeted group. The evidence gathering questionnaire was also sent to a range of EU level stakeholders, including representatives of various industries, civil society organisations and other interested parties.

The evidence gathering questionnaire was co-developed by the evaluation team and the Commission. It consisted of the evaluation questions from the mandate, along with a short interpretation of each question to demonstrate the relevant issues at stake and guide stakeholders on the type of evidence requested. Stakeholders were requested to provide internet links or to directly attach relevant documentary evidence to support their answers. To increase the quality and range of evidence provided, stakeholders were also encouraged to coordinate in a single questionnaire their responses to the questionnaire with other relevant organisations in their area of activity where possible (e.g. national level authorities with regional and local authorities; groups of conservation NGOs). Although the Terms of Reference for the study had envisaged that the consultation would mainly be carried out through interviews, it was decided to provide stakeholders

with the questionnaire in writing, in order to provide them with the opportunity to consult with others and to facilitate their gathering of the best available evidence for the analysis of each question.

The evidence gathering questionnaire was sent to 159 stakeholders, of whom 102 responded. 13 other stakeholders sent unsolicited responses, which were also taken into account. In total, 115 completed questionnaires were received from stakeholders in 27 Member States (except Latvia) and numerous EU level organisations. This element of the process took place during March – July 2015. Stakeholders were initially given five weeks to respond to the questionnaire, but many required extensions in order to facilitate coordination among institutions or groups of organisations. This proved challenging for the management of the consultation process, and also impacted the time available for evaluation of responses (see section 4.4 for a discussion of these limitations and challenges). Stakeholders were not obliged to respond to all questions, but, rather, those they considered relevant to their country or area of activity. It was specifically requested that answers be supported by evidence, and that the evidence should be quantitative, where available. The exact breakdown of responses is shown in Table 2 below.

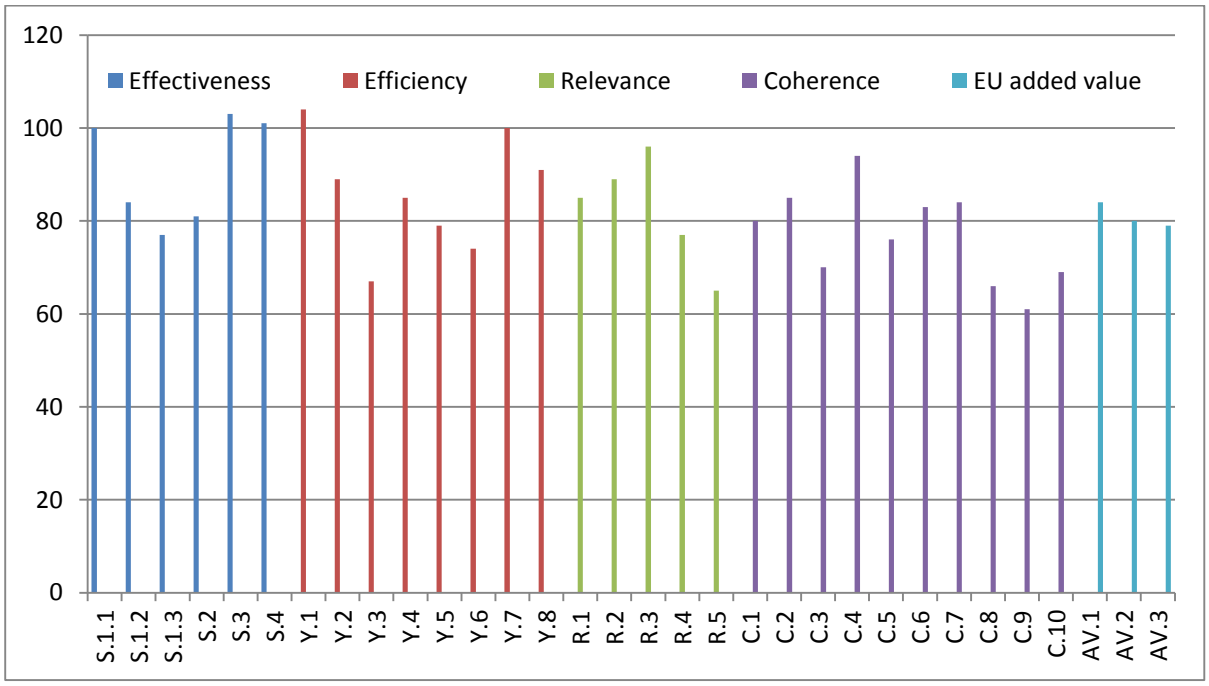
Table 2 Evidence gathering questionnaires sent and received, by type of stakeholder

Type of stakeholder		Number of questionnaires sent	Responses received (% of total)	Non-responses (% of total)
Member State stakeholders	Nature protection authority	28	25 (89%)	3 (11%)
	Other public authority	28	15 (54%)	13 (46%)
	Private sector	28	12 (43%)	16 (57%)
	NGO	28	27 (96%)	1 (4%)
Total		**112**	**79 (71%)**	**33 (29%)**
EU level organisations	Industry	20	7 (35%)	13 (65%)
	Agriculture and forestry	13	4 (31%)	9 (69%)
	Sustainable users	7	5 (71%)	2 (29%)
	NGOs	7	7 (100%)	0 (0%)
Total		**47**	**23 (49%)**	**24 (51%)**
Unsolicited contributions		N/A	13	N/A
GRAND TOTAL		**159**	**102 (64 %[105]) + 13 = 115**	**57 (36%)**

The actual responses received were evenly spread across the evaluation questions, as shown in Figure 12 below. Most stakeholders answered most of the questions, with nearly 75% of questions answered (2,658 individual question responses were received out of a possible 3,565 across the 115 questionnaires). All completed evidence gathering questionnaires, as well as additional information and clarifications subsequently provided by the stakeholders, were made available online via the Commission's website for the Fitness Check[106].

[105] Percentage does not include unsolicited contributions.
[106] http://ec.europa.eu/environment/nature/legislation/fitness_check/evidence_gathering/index_en.htm accessed 17.02.16

Figure 12 Overview of the total number of responses per evaluation question



The evidence gathering questionnaire was successful in reaching a large number of various types of stakeholders, some of whom provided considerably detailed information in response. The volume of data received represented a challenge in tracking and management, including requests for clarification and further evidence from the evaluation team. The team therefore developed the 'Consultation Information Management Tool' (CIMT) to manage the evidence gathering questionnaire responses. CIMT, an Excel-based tool accessible via an internal online platform, enabled storage, categorisation and presentation of the information received including completed evidence gathering questionnaires, as well as any additional information subsequently provided by the stakeholders. Responses to each individual question were logged into the tool with specific identifying data (e.g. evaluation question number, Member State, type of stakeholder, etc.). While the questionnaire responses contained in the CIMT had already been published on the Commission website, the Excel tool enabled their sorting for analysis.

Throughout the consultation process, CIMT allowed the data collection team to track responses, send reminders, track requests for additional information from stakeholders, and log and store additional information received. The tool later proved invaluable in enabling the team to streamline and analyse the breadth of information received in developing responses to the evaluation questions (see section 4.4). A snapshot of the tool showing how responses were logged is presented in Figure 13 below.

Figure 13 Snapshot of the Consultation Information Management Tool

Question	Country / region	Name of the stakeholder	Type of the stakeholder	Sector	Response	Reference Database cited document Code
R.2	AT	ASFiNAG	MS authority or agency	transport	The Annexes to the Directives are a reflection of technical and scientific progress and should therefore be regularly updated. Updates are currently made in one direction, namely as new member states join the EU. Adjustments should be made in both directions. In 1997, for instance, the Great Cormorant (Phalacrocorax carbo) was taken out from the Annex I of the Birds Directive, after its population in had strongly grown in Europe (http://ec.europa.eu/environment/nature/cormorants/faq.htm). 'Besides, the Annexes do not present the newest scientific knowledge. For example, in the Annex II of the Habitats Directive, "Myotis blythiii" is cited. According to new findings, this species can only be found in India. (Spitzenberger et al 2001).	1052
R.2	AT	WWF, Member Organisations of the Umweltdachverband (BirdLife Austria and 38 other Austrian NGOs)	nature conservation charity	environment	Conclusion: The Annexes have been sufficiently adapted to technical and scientific progress to serve their purpose. Due to the checks and balances provided by the consideration of habitats and species, and of species of different taxonomic groups, the system as a whole is buffered against minor gaps in the Annexes. To this date at least in Austria the effects of insufficient implementation of the Directives are much more relevant than the possible effects of gaps in the Annexes. However the quality of the adaptations in the course of the enlargement of the EU depends on the proposals provided by the respective joining Member States. Future adaptations may need more guidance by the European Commission. Moreover, more regular taxonomic revisions of the Annexes of the Birds and Habitas Directives are needed to avoid confusion of stakeholders without sufficient taxonomic expertise. EVIDENCE: SEE QUESTIONNAIRE TEXT FOR FULL TEXT https://milieu-be.box.com/s/dz7vpclgstijcdf6bqg56jm8sy6x4zv4	1052, 20, 1216, 870, 1057, 1059, 1058, 1050
R.2	AT	Copa-Cogeca: LKOE	Business or industry	Agriculture, forestry, fisheries	No. The legislation should have been adapted at the moment when Member States from Central Europe joined the EU. Additional climatic regions came into the EU and some protected species are now causing problems (e.g. wolf, beaver, otters, cormorants, heron).	none
R.2	BE	Agency for Nature and Forests, Government of Flanders; Public Service of Wallonia, Directorat-General of Agriculture and Natural Resources (DGARNE), Department for Nature and Forests (DNF)	MS authority or agency	environment	https://milieu-be.box.com/shared/static/w08szv4k2y45oq1kdn8yktk3sfxgmaku.docx	

4.3.1.2 National Missions to Member States

National Missions to 10 representative Member States took place between April and June 2015 in order to examine the experience of implementation of the Nature Directives in more detail. This also provided the opportunity to consult with a wider range of stakeholders than those targeted by the evidence gathering questionnaire and investigate if additional relevant information could be made available.

The 10 Member States were selected based on availability of relevant data, and with the aim of ensuring a balance of size, geography, different administrative structures, older and newer Member States and different approaches to implementation. The Member States were selected jointly by the evaluation team and DG Environment, with the selection approved by the Fitness Check Steering Group. The following Member States were selected: Estonia, France, Germany, Malta, Netherlands, Poland, Spain, Slovakia, Sweden, UK.

Prior to each of the 10 National Missions, the team prepared an individual standardised Country Sheet, to ensure effectiveness of the meetings and provide structure to the information received. The meetings were organised by the respective Member State nature protection authority, and took different approaches. Some organised a series of individual issues-driven meetings, while others were structured by types of stakeholder. While most meetings aimed to broaden the scope of stakeholders involved in the consultation, one Member State limited the participation in the meetings to those stakeholders who had provided a response to the evidence gathering questionnaire, thereby enabling a more in-depth analysis of the key issues already raised in the responses. Following each of the missions, those present from the team developed an internal mission note, which was shared with the entire evaluation team for consideration in developing responses to the evaluation questions. Summaries of the National Missions are provided in Annex 2.

4.3.1.3 Focus groups and Commission meetings

To gain deeper insight into the issues from an EU level perspective the team organised a series of focus groups, enabling the EU level organisations to obtain information on the purpose of the exercise, present their views in advance of the submission of the evidence gathering questionnaire, debate them with their peers, and respond to follow-up questions from the evaluation team and DG Environment. A total of 30 EU level organisations participated in the focus groups, more than the 23 targeted by the evidence gathering questionnaire. Four meetings were organised for different types of organisations:

- **Nature conservation NGOs:** representatives of the civil society sector working on nature conservation, including EEB and the World Wide Fund for Nature (WWF), among others.
- **Sustainable users:** landowners, hunters, aquaculture producers, including ELO, FACE and FEAP, among others.
- **Infrastructure development and extractive industry:** representatives of cement, minerals, aggregates, and mining industries, including CEMBUREAU, EUPG, and Euromines, among others.
- **Agriculture and forestry:** including Copa-Cogeca and EUSTAFOR, among others.

The four focus groups were held in March 2015. They enabled the team to explore different ideas and obtain a better understanding of the issues at stake, including the complexities surrounding the positions of various stakeholder groups.

The meetings were chaired and facilitated by DG Environment and the evaluation team, with specific questions raised for each group, based in part on priority issues that participants indicated in advance. Internal notes from the meetings were shared across the evaluation team.

In addition to the four focus groups, the evaluation team organised meetings with those Commission Services from the Steering Group who indicated their interest in providing specific documentary evidence for the study. Meetings were held with the following DGs: AGRI, GROW, MARE and REGIO. The documentary evidence is included in the Reference Database but no records from those meetings were kept. Other Commission DGs participated through the Steering Group process and meetings.

Summaries of the focus group and Commission meetings are provided in Annex 2.

4.3.1.4 Online public consultation

The Fitness Check required a 12-week online public consultation to get the views of citizens and civil society on the implementation of the Nature Directives, according to the Commission principles and standards set out in the Better Regulation Guidelines[107]. The consultation was open to all, and aimed at reaching the broadest possible range of stakeholders.

The development of the online public consultation questionnaire was led by the Commission, based on preparatory drafts provided by the consortium that were further developed by DG Environment with input and agreement from the members of the Steering Group. The aim was to design an accessible and user-friendly questionnaire to allow for an inclusive approach. The complexity of the issues at stake, however, made it challenging to design a questionnaire that would appeal to both interested non-experts, and also those with detailed relevant expertise on different aspects of the issue. To resolve this,

[107] http://ec.europa.eu/smart-regulation/guidelines/toc_guide_en.htm accessed 17.02.16

the Commission designed the questionnaire in two parts: Part I was aimed at the general public, comprising questions not requiring extensive knowledge or direct experience of the Directives, while Part II covered the issues in more depth. Both parts of the questionnaire were based on the five evaluation criteria and questions as presented in the mandate for the Fitness Check. All questions were multiple-choice, except for the final open question, which offered participants an opportunity to comment freely on any issues they wanted to discuss in more detail.

The questionnaire was made available online in all 23 official EU languages for 12 weeks between 30 April and 26 July 2015. The launch of the online public consultation was advertised through the stakeholder mailing list and other different mailing lists, DG Environment's website dedicated to Fitness Check, two subsequent issues of the Natura 2000 Newsletter, Green Week 2015 (3 June 2015), the 'Your voice in Europe' website, the LIFE website, and the IMPEL website[108][109][110][111].

The online public consultation for this Fitness Check received an unprecedented level of interest from a wide range of individuals and organisations across the EU and beyond. In total, 552,472 replies were received, the largest response the Commission has ever received to one of its online consultations.

Several interest groups organised campaigns to generate large numbers of responses to the online public consultation, with at least 12 such campaigns identified. In many cases, these campaigns also provided proposals on how to answer specific questions. The campaigns were highly successful and generated over 90% of the total responses received. Although it was not possible to link individual responses to each of the campaigns, the Nature Alert! campaign organised by a group of environmental NGOs, claims on its website to have generated in the region of 520,000 or 94% of total replies[112]. This campaign guided participants on how to reply to the questions in Part I of the questionnaire – they identified themselves as 'individuals' interested in 'nature'. This had a significant impact on the results of the overall responses to Part I of the questionnaire. Another significant campaign came from the German Aktionsbündnis Forum Natur (AFN), and took a critical view of the Directives. Analysis of responses suggests that around 6,200 replies came from this campaign from participants interested in 'agriculture', 'forestry' and 'hunting'. Participants in this campaign also responded to Part II of the questionnaire and are estimated to comprise around 38% of the replies to that section.

An extensive analysis of the online public consultation results was published in a report on the Fitness Check website[113]. This provides greater detail about the types of respondents, the nature and suspected influence of the campaigns, and a detailed analysis of the responses to every question by type of respondent and other factors. When considering the results of the online public consultation, the evaluation team has taken a very cautious approach in interpreting the results and allowing them to influence judgements. For example, when the Part I responses are reduced to percentages, they reflect the responses proposed by the Nature Alert! campaign (particularly for the category of 'individuals') to a significant degree, presenting a very positive view of the Directives, with over 90% of Part I respondents agreed that the benefits of implementing the Directives far exceed the costs. Part II, aimed at those with greater expertise and experience, was

[108] See issues number 37: (http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat37_en.pdf) and 38: (http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat38_en.pdf), accessed 20.12.15

[109] http://ec.europa.eu/commission/2014-2019/vella/announcements/introductory-speech-commissioner-vella-green-week-2015_en accessed 20.12.15

[110] See:http://ec.europa.eu/environment/life/news/newsarchive2015/may/index.htm#nat2000consult accessed 20.12.15.

[111] E.g.: http://impel.eu/news/public-consultation-as-part-of-the-fitness-check-for-eu-nature-legislation/ accessed 20.12.15

[112] https://www.naturealert.eu/en accessed 20.12.15. However, the consultants responsible for the report presenting the results of the online consultation, could only directly link 505,000 responses to that campaign.

[113] http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/consultation/public%20consultation_FINAL.pdf accessed 16.12.15

not addressed by the Nature Alert! campaign, which may explain why it often appears to give contrasting views to Part I. This likely reflects the higher proportion of Part II respondents identified as 'business' and also the impact of the Aktionsbündnis Forum Natur AFN campaign. For example, 60% of Part II respondents consider there to be major administrative costs associated with the implementation of the Directives. The evaluation team has, therefore, had to consider these results very carefully, in combination with other, more concrete and specific evidence in order to draw overall conclusions.

4.3.1.5 Nature Directives Fitness Check Conference

As part of the Fitness Check the European Commission organised a high-level conference on 20 November 2015 in Brussels to present and discuss with stakeholders the preliminary results emerging from the evaluation study[114]. The conference was attended by approximately 400 participants, representing all EU Member States. Participants came from national, regional and local governments, from the EU institutions, from environmental and other sectoral authorities, from industry and other private sector organisations, from civil society and other institutions.

The purpose of the Conference was to present the preliminary results of the evaluation to stakeholders with a view to ensuring that: 1) important findings were not overlooked in the conclusions; 2) there was no misrepresentation of evidence in findings; and 3) adequate regard was given to the different inputs and evidence supporting different views. Preliminary results were distributed to participants prior to the event in the form of an 'emerging findings' report[115]. During the conference, these emerging findings were presented in a series of four panels, followed by reactions from panellists representing each of the four stakeholder groups addressed by the targeted consultation, i.e. nature authority, other sectoral authority, the private sector and civil society. Each panel session ended with questions and statements from the audience.

While the conference generally found that there were no major gaps or misrepresentation of evidence in the emerging findings, additional specific examples of good implementation practice were frequently noted, along with challenges for the future. The conference was an important opportunity for stakeholders - many of whom had already participated in the consultation activities - to review and verify the results of the study before they were finalised.

4.4 Analysis and evaluation of evidence

The team used systematic methods to collate, analyse and evaluate all of the evidence received, and applied a range of analytical methods to develop conclusions. These are described in this section.

4.4.1 Collation of evidence

The extensive evidence gathering process carried out for this evaluation required a comprehensive and systematic approach to managing all of the information gathered. As the information came from a variety of sources and formats (e.g. literature review, quantitative datasets, meeting notes, questionnaire responses, etc.) a method was needed to

[114] All conference presentations and speeches, as well as the background document presenting the consultants' emerging findings and a conference summary report, are available online at: http://ec.europa.eu/environment/nature/legislation/fitness_check/conference_en.htm accessed 17.02.16

[115] The emerging findings report distributed at the conference is available at: http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/consultation/Fitness%20Check%20final%20draft%20emerging%20findings%20report.pdf accessed 17.02.16

store, log, track, categorise and filter the evidence, as well as share it among team members working in different organisations and locations. To manage this, the team used the Reference Database and CIMT tools described in the previous section. These tools not only enabled efficiency in the process of synthesising and analysing the information, but also made sure that it was dealt with systematically, with nothing omitted.

Evaluators were able to process all the information from the targeted stakeholder consultation in the evidence gathering questionnaires through the CIMT. The cataloguing of all responses to the individual evaluation questions allowed for responses to each question to be filtered, summarised, and linked to the full responses (where lengthy) or supplementary documents in the Reference Database. To supplement the analysis, the responses could also be filtered by key words, by sector, by Member State and other criteria. Draft meeting notes from the Member State missions and focus groups were shared among the team of evaluators through CIMT as draft notes for internal review and not for distribution. A summary of those meetings is provided in Annex 2.

Together, the Reference Database, CIMT, meeting notes and online public consultation report were the main tools and documented sources that the team used to review, synthesis and analyse the evidence when developing detailed answers to the evaluation questions and proposing overall conclusions. This process is described in the following sections.

4.4.2 Analysis methods

The evaluation framework formed the basis for the detailed review of evidence and analysis of each evaluation question. The main analytical method used for most questions was content analysis via the Reference Database and the CIMT tools, with further sorting of the evidence to organise the large amounts of unstructured textual content into thematic data relevant to the evaluation questions and each judgement criterion.

Evaluators used an Excel sheet to map the evidence gathering questionnaire responses to each judgement criterion as positive, negative or somewhere in between. This 'thematic coding' method worked well for questions and criteria that lent themselves to a relatively straightforward positive/negative classification of the response[116]. For example, the number of stakeholders considering the Directives to give rise to unnecessary administrative burdens (see section 6.7) was logged, with the numbers of respondents citing different causes of such burdens (e.g. species protection rules, Appropriate Assessment (AA) procedures, etc.) also recorded. For others, such as the coherence questions, there was evidence to support different types of answers to the questions, this quantification practice was less reliable and has not been reported in the analysis results. It was nevertheless an important way of reviewing and classifying the large amount of information, as well as noting good points and examples for follow-up and inclusion in the analysis for illustrative purposes. The results of this analysis, combined with the initial literature review and results of the National Missions and focus groups, enabled the development of preliminary conclusions which were then tested against further literature review. This allowed, in many cases, the triangulation of evidence from different perspectives and sources.

To further aid the processing of information, evaluators noted the nature of each piece of evidence, according to a typology as follows:

- An opinion is given, but without relevant supporting evidence.
- Case examples with unknown representativeness (e.g. costs of undertaking an appropriate assessment under Article 6.3 of the Habitats Directive, or benefits from a single Natura 2000 site).

[116] http://betterevaluation.org/evaluation-options/content_analysis accessed 17.02.16

- Complete survey or representative sample-based surveys, comparisons before and after interventions, or amongst areas - but no controls (e.g. SPA area data, Conservation Status data).
- Before After Control Impact studies - randomised control studies (e.g. Donald et al comparison of bird trends in EU Member States and outside, and in relation to SPA coverage).
- Independent Systematic Review (meta-analysis) of at least the majority of relevant evidence.

These differences in types of evidence did not necessarily reflect the overall weight or strength of evidence, as it also depends on their relevance to the issue in question and its representativeness with respect to the area and the time period being considered by the evidence source.

The interpretation and weighing of the best available evidence is a complex issue, relying, very often, on professional judgement, but supported by approaches such as triangulating evidence wherever possible (i.e. checking the consistency among multiple sources). The following criteria were used as a guide for evaluating each item of evidence:

- **Internal validity of the evidence:** is the evidence precise and reliable? Less weight is given to opinions, for example, than to well-designed studies more likely to provide a precise and unbiased estimate. However, a number of similar opinions expressed by different stakeholders has been accorded greater weight. Expressed opinions have been summarised and referred to, even in cases where they did not greatly influence the overall assessment against each judgement criterion.
- **Sample size and representativeness:** is the evidence based on an adequate number of cases / samples (in proportion to significance)? Particular care has been taken to note where a case or example is illustrative, or where it is representative of many cases in many countries.
- **Temporal relevance:** is the evidence up-to-date or of an age likely to affect its relevance? Does it represent the period being considered, and, in particular, have changes in circumstances occurred that might now invalidate its results (e.g. a major political or legislative change)?
- **Geographic relevance:** to what geographical area, or at what scale, does the evidence relate (e.g. the EU as a whole, a Member State or a more local level)?

All judgements made as part of the study have been based on the best available evidence, even if, in some cases this has been based on opinions where these were the only available evidence on the issue in question. In such cases qualifications on the reliability of the evidence and its implications have been described in the report.

4.4.2.1 Evaluating costs and benefits

For the efficiency questions, a typology of costs and benefits was prepared. This was included in the evidence gathering questionnaire and helped to guide respondents on the types of costs and benefits and the range of evidence being sought.

The questions on costs and benefits sought to gather overall evidence of the costs and benefits of the Directives (see section6.3 6.1), to examine cost differences between Member States and the reasons for such differences (see section 6.3), to examine the balance of costs and benefits and identify any examples of costs which are dispropor-

tionate to benefits (see section 6.4), to gather examples of cost-effective implementation (see section 6.5), to examine the costs of non-implementation (see section 6.6), and to collect evidence on administrative burdens and assess the extent to which the Directives give rise to unnecessary burdens (see section 6.7).

As far as possible, quantitative evidence of the monetary value of costs and benefits was sought. However, while there is good quantitative evidence of some of the costs and benefits (particularly implementation costs and benefits of the Natura 2000 network), quantitative evidence of other costs and benefits is more limited (e.g. opportunity costs, administrative burdens, benefits of species conservation). Qualitative evidence proved valuable, including case studies of cost-effective implementation of the Directives. In some cases, an element of judgement was needed in the analysis, for example to examine whether costs could be considered disproportionate or administrative burdens unnecessary. These judgements were informed by the views and experiences of stakeholders, as well as by any quantitative evidence provided.

As for all aspects of the evaluation, the analysis relied on a combination of existing literature, evidence gathering questionnaires, insights from the 10 Member State missions, and results from the online public consultation. Existing literature proved to be the most valuable source of quantitative evidence of the costs and benefits of the Directives, providing the most complete and robust evidence. The evidence gathering questionnaires proved useful in signposting relevant studies, particularly within the Member States, and also provided case study examples and some original quantitative information (though often in relation to individual case examples). The Member State missions helped to uncover additional evidence and to interpret it in a national context and from the perspective of different stakeholder groups. The online public consultation results proved more problematic, offering less robust evidence, particularly given the considerable influence of stakeholder campaigns on the responses.

The analysis gathered evidence that was as up-to-date as possible. While many of the available studies of costs and benefits have been completed recently, some are now a few years old. For example, the Gantioler et al estimates of the costs of implementation of Natura 2000 aggregate data provided by the Member States in 2009/10. Insofar as possible, more recent evidence was used to examine the continued validity of older studies. For example, a number of more recent estimates of Natura 2000 costs are available through PAFs and other national studies, and these were compared with the Gantioler et al estimates. While more recent evidence generally lends support to the assessment by Gantioler et al, a comprehensive analysis is not possible because of the fragmented nature of more recent data.

4.4.2.2 Establishing a counterfactual and limitations of this method

Following Chapter VI, Section 2 of the Better Regulation Guidelines, this evaluation has assessed the actual performance of the Nature Directives compared to initial expectations (described in section 2.3)[117]. This requires a critical examination of whether or not the Directives are fit for purpose and deliver the desired changes at minimum cost. In an evaluation process, the assessment of the Directives' EU added value examines the changes that have occurred due to the implementation of the Directives, which could not have happened with solely national legislation. This is usually done through the establishment of a so-called counterfactual situation.

However, the Commission's Better Regulation Guidelines also note that 'it is particularly difficult to identify a robust counterfactual situation'[118]. This method is mainly proposed

[117] European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.
[118] European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.

for the analysis of funding programmes, where the counterfactual can be more accurately drawn from a baseline properly established in advance. The use of a counterfactual for the evaluation of legislation is more challenging, as firm baseline and clear expectations of EU added value are generally not available, as is the case for the nature legislation.

Indeed, such retrospective analysis is challenging for this evaluation as the Nature Directives were adopted without an ex-ante impact assessment that could inform these assumptions. The Commission requirement to assess the impact of any legislative proposal, including the subsidiarity principle to determine the most effective level of action, was established after the Nature Directives were adopted. The lack of such ex-ante impact assessment means that a baseline or expected results from the future implementation of the EU legislation was not formally established at the time of preparation of the legislation. Therefore, the basis for the analysis has been the established objectives of the Directives as stated in the legislation, without any specific reference point establishing the estimated impact of implementing the EU legislation in comparison to a reliance solely on national laws.

The analytical approach taken for this study was not based, therefore, on the use of a formally defined counterfactual, but, rather, uses illustrative examples to reflect transformational changes or trends that can be convincingly assumed to have been triggered by the Directives and which would likely not have happened in their absence. However, these examples more often reflect impacts than establish strong counterfactuals. The examples are taken from literature, experts and stakeholders' responses to the evidence gathering questionnaires and online public consultation.

In order to establish the causality of the changes generated, the role of the Nature Directives in these changes and, where possible, the hypothesised situation in the absence of the Nature Directives, the following type of comparisons have been used:

- **Comparisons of observed transformational changes**: examining significant changes from observed results and impacts, and assessing the extent to which they can be attributed to the Directives.
- **Temporal comparisons:** assessing evidence of the situation at the time of EU accession (and/or transposition of the Directives in Member States) compared to the current position.
- **Spatial comparisons**: comparing evidence of the situation in analogous countries and regions not subject to the measures under the Directives.
- **Implementation comparisons:** assessing evidence of differences in outputs, results and impacts according to the stage of implementation in the different Member States.

For example, increases in the extent of the protected areas surface, both terrestrial and marine, is considered to be transformational change that can be attributed to the implementation of the Directives. This assessment is made when comparing the surface of protected area now with that existing at the time of the adoption of the Directives (or EU accession). The extent of such change leads us to assume that it would not have happened without the Directives, although it is not possible to determine what would have actually occurred without the Directives – i.e. the counterfactual. It is highlighted under the effectiveness question S.1 (see section 5.1) and the EU added value questions AV.1/AV.2 (see section 9) of this study.

An example based on a spatial comparison has been identified in relation to the protection of species against illegal hunting, which is a major threat and an explicit objective of the Directives. The example shows that the level of protection against illegal hunting in the EU is stronger and more effective when compared with the existing situation in analogous countries all along the Adriatic Flyway.

Temporal and implementation comparisons have been identified where significant changes related to certain objectives have occurred in certain Member States but not in others, and can be determined when comparing the situation before and after the Directives' adoption. For example, the level of awareness and involvement of stakeholders in decisions on the management of Natura 2000 areas in recent years has increased in several EU Member States, such as France, where the implementation of the Nature Directives has led to a strong commitment to establish information structures and initiatives to involve stakeholders in decision-making. Raising awareness and stakeholder involvement can be considered conditions or supporting objectives that facilitate the implementation of the Directives and effective achievement of its conservation objectives (see sections 5.1, 5.3, 5.4 and 9). The changes can be attributed to the Directives as they resulted from actions required to implement the EU legislation. It can be assumed that the change would not have existed without the Directives, as such changes have not happened in those Member States who are still struggling to implement these aspects of the Directives. The counterfactual in this case would be defined as 'non-implementation' based on the different choices of implementation approaches in Member States. While not a robust counterfactual, it is considered a valid argument to support the conclusion.

The analysis of the net costs and benefits of the Directives aimed to compare these with a counterfactual in which the Directives did not exist, by attempting to examine the added costs and benefits of the Directives compared to national conservation laws, and to assess the consequences of non-implementation. However the necessary evidence was rarely available. For example, with respect to Natura 2000, it is important to understand the additional costs of designating, protecting and managing sites compared to the costs that would be incurred if the sites were only subject to national laws (recognising, for example, that many sites have national as well as EU designations). However, most of the evidence found related to the overall costs of conserving these sites, rather than the added costs imposed by the Directives. Similarly, in evaluating the Directives, the added benefits of Natura 2000 compared to national policies and designations are an important distinction. However, most of the available evidence relates to the overall benefits of Natura 2000 sites, and does not quantify the added benefits brought by the Natura 2000 designation (e.g. in terms of added protection and enhanced management - maintaining benefits that would otherwise be at risk, or enhancing benefits through sympathetic management). Where evidence of the additional or net costs and benefits was lacking, suitable caveats had to be applied to the discussion and analysis.

Similarly, the evaluation of the efficiency of the Directives includes a question (see section 6.6) addressing the counterfactual directly, by seeking to establish the costs of non-implementation – i.e. it considers the benefits of implementation by asking the costs of non-implementation. The counterfactual scenario is broadly defined here as 'non-implementation'. There was limited direct evidence, leading to a reliance on stakeholder views, as well as some interpretation of the broader evidence base on costs of policy inaction, and professional judgement. The evidence base also included some case studies on the costs and lost benefits of failure to implement the Directives in particular places.

To conclude, the evaluation of the Nature Directives has looked critically at the actual performance of the Nature Directives, assessing the current situation against the stated objectives of the legislation, compared to other temporal, spatial or implementing situations, to illustrate transformational changes that can be considered to have been triggered by the Directives. However, while consideration of the counterfactual ran through the analysis, insufficient evidence was available to enable the definition of an actual or quantified counterfactual against which the performance of the Directives might be assessed.

4.5 Challenges, limitations and lessons learned

As described throughout this section on methodology, considerable efforts have been made to ensure that this evaluation study was carried out in a robust manner, following the guidelines and principles of the EU's approach to Better Regulation. At the same time, it was a complex and challenging undertaking and some limitations related to the research, evidence and analysis methods and results must be recognised. The process of carrying out the evaluation also produced some lessons which can be of particular use for future high-profile, complex and broad-ranging evaluations and Fitness Checks.

4.5.1 Managing the scope of the evaluation against resources and time

The Fitness Check of the Nature Directives has generated considerable interest from stakeholders and the public. The issue of nature protection is complex and cuts across many areas of policy-making, directly impacting a wide range of stakeholders, from economic operators to civil society. People, including the general public and stakeholders, have very passionate and often contradictory perceptions, beliefs, interests, feelings and experiences related to nature conservation and the Nature Directives. This made the task of gathering the best available evidence especially challenging. All evaluations should be open and transparent, but the sensitivity and complexity of the issues involved in this evaluation has meant that the process has taken particular care to ensure a balanced approach to the evidence gathering and analysis, as well as to ensure that all who wanted to participate were given the chance to do so in some capacity. This created a particular challenge for the research as it had to be both inclusive and participatory, but also capable of gathering the type of objective and reliable evidence required to develop and justify credible evaluation conclusions. It also had to be feasible within the human, financial and time resources available.

The objectives for consultation were ambitious in scope and approach: a priority was to include as many stakeholders as possible from different perspectives and from across the Member States, as well as the general public. Through five different activities (targeted evidence gathering questionnaires, National Missions to 10 Member States, EU level focus groups, online public consultation and a high-level conference on the emerging findings), the consultation reached a very large number of stakeholders. At the same time, the breadth of the consultation process, and unexpected complexities involved in many of the steps, considerably reduced the time available for the evaluation of evidence and report drafting against an already tight timetable.

For the targeted consultation, stakeholders were initially given five weeks to provide their main responses to the evidence gathering questionnaires. This proved too short a period to allow for meaningful consultation with other colleagues or institutions to ensure a comprehensive response. To mitigate this situation, extensions were granted in order to obtain as many complete responses as possible, and some questionnaires were received months after the initial deadline. This impacted the subsequent consultation activities (i.e. National Missions to Member States) tightening the timeframe for review and analysis of the full body of evidence, and development of valid preliminary results in time for the conference. It also made it difficult to request clarifications when responses to questions were unclear or lacking concrete evidence.

The unprecedented level of interest in the online public questionnaire, as described in section 4.3.1.4, meant that the time and resources initially planned for the analysis of the data were insufficient and had to be extended to cover the work required. This was complicated by the addition of a final open question, which could not be analysed quanti-

tatively or through automated data processing, and therefore required extra work to process and analyse, delaying the completion of the evidence gathering phase of the project.

To enable completion of the work within the required time frame, the team allocated additional human resources, particularly to the evaluation and report drafting phases of the project. However, additional time for this part of the project could potentially have allowed for more in-depth analysis overall. Additional time may also have led to better consistency across the study sections, which have been authored by different team members with requisite expertise.

These lessons should be considered when planning the timing and resource expectations for future Fitness Check initiatives.

4.5.2 Quality and usefulness of stakeholder input

Despite the careful planning and significant breadth of the stakeholder consultation, not all of the information received was suitable for use. The consultation methods selected were very effective in providing a forum for a relatively large number of stakeholders to express their opinion based on their experience with the Nature Directives. These methods were not, however, as effective at collecting the very specific data and concrete evidence that are required to develop and justify solid conclusions about the performance of the Directives. The team, therefore, frequently relied on legal and policy analysis and existing studies in order to back up the analysis presented in the report.

In general, the evidence gathering questionnaires, which enabled targeted stakeholders to submit detailed explanations and documentary evidence supporting their responses, were the most useful results of the consultation activities for the evaluation. The quality and usefulness of the stakeholder input received through the different consultation steps is discussed below.

Targeted stakeholders were given freedom to respond to the evaluation questions in an open manner, with only short explanations provided in order to avoid the introduction of any bias or 'leading' of stakeholders into certain types of responses. This also gave stakeholders the opportunity to provide a large amount of information, if desired. However, as discussed in more detail below, it also posed some challenges with regard to the usefulness of the answers as an evidence base for the evaluation.

The understanding of each question was often inconsistent across the stakeholders, with some questions interpreted differently. For example, in some cases, stakeholders provided general information about biodiversity conservation or environmental policy not necessarily specific to the Directives (e.g. the costs and benefits of nature protection more generally, or problems generally with EIA for infrastructure projects).

The questions did not request answers in a standard format. This often made it difficult to categorise and quantify the responses and draw general conclusions.

As stakeholders were free to respond only to those questions relevant to their experience, some questions or parts of questions received a limited number of responses. Some questions with multiple parts (e.g. C.4 and C.5 on coherence with the different sectoral policies) would have benefitted from being broken down into different components to encourage more comprehensive responses.

In some cases, stakeholders provided partial answers to questions (e.g. giving information about costs or administrative burdens but not always demonstrating that costs were disproportionate or burdens unnecessary) or opinions without any evidence or examples to support their claims. When stakeholders did make efforts to provide cases or examples supporting their statements, these were often one-off examples and it was

difficult to deduce the extent to which they represented the average situation. The broad nature of the questions meant that different stakeholders sometimes focused on different aspects of the issues, making comparability across responses and drawing of consistent, solid conclusions, more difficult.

The National Missions to the Member States were useful for putting evidence from the literature in context and understanding the precise details of complex implementation situations in a particular Member State. They often enabled better interpretation of the responses and evidence given in the questionnaires, and frequently led to the provision of additional evidence. The missions also had the benefit of directly engaging many stakeholders in the process, giving them a chance to present their views directly to the evaluation team and the Commission, rather than simply completing a questionnaire. The value of these events was constrained, however, by the broad scope of the evaluation and the limited timeframe for meetings in each country.

Similarly, the focus groups were very helpful in setting up the exercise and building engagement of stakeholders at an early point in the process. Although they did not provide evidence directly, they provided benefits in terms of establishing the process by which evidence was later provided. For many of the questions, the evidence gathering questionnaires from the EU level organisations were some of the most detailed and evidence based of all received. This may be due to the fact that through the focus groups, these stakeholders had the chance to better understand the specific aims and orientation of the Fitness Check and tailored their responses accordingly.

The online public consultation also gave the chance for many to add their voices to the Fitness Check. However, the heavy influence of interest-group campaigning in the consultation process had a significant impact on the eventual value of the consultation results as evidence for the evaluation, as discussed in section 4.3.1.4.

Finally, the Fitness Check conference held at the end of the process provided an excellent opportunity to re-engage many of the stakeholders who participated in the evidence gathering process, and give them the opportunity to see the outcomes of their work before it was made final. For the process of the evaluation, it provided a chance to determine whether there were any major gaps, omissions or misrepresentations in the findings. As the evaluation criteria and questions were analysed one-by-one, the conference also gave the evaluation team a good opportunity to begin putting together more synthetic, higher-level conclusions and consider the most relevant and important aspects of the information gathered, in order to develop intermediate conclusions. The participation of high-level officials at the EU (Commissioner, Director-General, Director) and Member State (Ministers, representatives of current and future EU presidencies) levels gave greater weight to the issue and generated significant interest in the event.

4.5.3 Availability of information/evidence

Information in a credible, quotable form that would constitute solid evidence was not always available to support all aspects of the evaluation. Some of the specific issues addressed by the evaluation questions lacked extensive documented research or even published opinions. This was the case, for example, with question C.6 on internal market, coherence with some of the sectors in questions C.4 and C.5, and some aspects of the assessment of relevance. As a result, the evaluation had to rely primarily upon the stakeholder views in order to answer the questions and substantiate any conclusions. The discussion and conclusions were sometimes therefore primarily based on 1) analysis of the relevant legal and policy documents alone (e.g. in the case of coherence), and 2) a reporting of stakeholder opinions, illustrated by examples.

It was not possible to gather additional data sets on costs or administrative burdens through the evidence gathering activities, as such data are not systematically collected

by the Member States according to standard methods. Stakeholders provided information and data that were relevant to costs, but it was not comprehensive or consistent, and served mainly as illustrative examples. The majority of the quantitative data and analysis used to support the conclusions was, therefore, taken from previous relevant studies.

For some of the questions, useful data, information and examples tended to come only from a few countries – frequently the UK, Netherlands and Germany and other countries from the North and the West of Europe. This resulted in the inclusion of a larger number of examples from those countries, particularly in the efficiency section (Section 6 of this report). On the other hand, for issues such as the availability of EU funding, or coherence with Cohesion Policy and other sectoral policies involving funding instruments, more examples were available from the East and the South of Europe. Efforts were made by the team to diversify the evidence base and gather illustrative examples, in order to gain a representative picture of the implementation experience across the entire EU. It should also be pointed out that the use of those examples does not reflect any judgement on the country and only serve the general purpose illustrating specific points.

5 Evaluation and analysis of effectiveness questions

This section focuses on assessing the extent to which the objectives of the Birds and Habitats Directives have been met, and identifying any significant factors that may have contributed to, or inhibited progress towards, meeting those objectives. 'Objectives' here refers not only to the general objectives of the Directives, but also the specific/operational objectives under other articles of both Directives (as set out in section 2.3).'Factors contributing to or inhibiting progress' relate to the Nature Directives themselves (e.g. the clarity of definitions), as well as to external factors such as political support, stakeholder attitudes, available resources and knowledge.

5.1 S.1 - What progress have Member States made over time towards achieving the objectives set out in the Directive and related policy documents? Is this progress in line with initial expectations? When will the main objectives be fully attained?

5.1.1 Interpretation and approach

This element of the evaluation considers the progress to date towards achieving the objectives of the Birds and Habitats Directives (see section 2.3). Although this mandate question also refers to 'related policy documents' these are not considered here, as the only document of direct relevance is the Biodiversity Strategy, and the Directive's contribution to its objectives are assessed in the next section 5.2.

The Habitats Directive's overall aim (i.e. general objective), as set out in Article 2, is to maintain or restore natural habitats and species of Community interest to Favourable Conservation Status. The primary evaluation criterion for the assessment of progress, therefore, is whether these habitats and species are being increasingly maintained or restored to Favourable Conservation Status. This assessment is facilitated by the definition of Favourable Conservation Status within the Directive (Article 1) as indicated in Box 1 and the associated requirements for surveillance, monitoring and reporting on the status of habitats and species of Community importance (Articles 11 and 17). Although care needs to be taken with the interpretation of changes to the status of EU protected habitats and species, the latest conservation status assessments summarised in the State of Play provide an opportunity to assess progress, objectively and quantitatively, with respect to the achievement of Favourable Conservation Status.

The Birds Directive has a similar aim (i.e. general objective) to the Habitats Directive, which, according to its Article 2, is to maintain the population of all naturally occurring wild birds (i.e. those referred to in Article 1) 'at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level'. The primary evaluation criterion for the assessment of progress with the Birds Directive is whether these species are being increasingly maintained according to Article 2. However, the evaluation of whether the Directive takes into account economic requirements is included under question R.3 (see section 7.3).

The assessment of this criterion is less straightforward than in relation to the Habitats Directive because its general objective is not as clearly defined (there is no defined Favourable Conservation Status), nor were monitoring requirements precisely set out under the Birds Directive. Nevertheless, some scientific evidence of bird trends and the impacts of the Birds Directive is available. Monitoring and reporting has also been brought into line with that under the Habitats Directive, and Member States have recently provided information on the population and range of each species, as well as their short- and long-term trends, as summarised in the State of Play (see section 3).

As indicated in section 2.3 on the intervention logic of the Directives, there are a large number of provisions (under specific articles) in both Directives with more specific objectives that aim to contribute to the general objectives of the Directives. A further judgement criterion used in this evaluation, therefore, is whether progress is being made against each of the specific and operational objectives. However, most of these objec-

tives are not defined in clear and measureable terms, making assessment of their progress largely a matter of professional judgement.

The articles in both Directives relate to a set of specific and operational objectives forming the following groups: the establishment of the Natura 2000 network (i.e. site identification and designation), site protection, site management, landscape measures to maintain and increase the coherence of the Natura 2000 network, species protection, financing, research, supplementary provisions (reintroductions, avoiding harmful introductions, and education and awareness) monitoring and reporting. This assessment primarily considers progress towards the objectives that fall under these groups, rather than considering each article individually. Progress towards each of their objectives is first assessed, followed by an overall assessment of the impacts of all of the measures and the progress being made towards the general objectives of the Directives.

The remaining judgement criteria that are considered here are whether the rate of progress towards the achievement of the objectives of the Directives is as expected (see section 5.1.3.2) and whether the anticipated date of completion is in line with expectations (see section 5.1.3.3).

5.1.2 Main sources of evidence

The assessment of progress on the overall aims of the Nature Directives, as well as other provisions that can be objectively assessed and quantified, such as the establishment of the Natura 2000 network, is primarily based on published evidence:

- Member State reports for 2001-2006, and 2007-2012, in accordance with Article 17 of the Habitats Directive on conservation status of habitats and species of Community importance – summarised in the 2015 State of Nature report (EEA, 2015a).
- Member State reports for 2008-2012, in accordance with Article 12 of the Birds Directive on population size and trends of bird species – summarised in the 2015 State of Nature report.
- The assessments by the European Commission and European Topic Centre – Biodiversity (ETC-BD) of the adequacy of the Natura 2000 network.
- Member State reports on relevant implementation issues.
- Scientific studies, such as those assessing the impact of the Directives on conservation status and trends, including any added value provided by the Directives.

These sources of evidence were identified through literature searches, consultations with Commission and Member State experts and other stakeholders, as well as in the responses to the evidence gathering questionnaire and supporting evidence.

The implementation of some provisions, however, is not well documented. In these cases, the evaluation of progress has primarily relied on the views expressed in the evidence gathering questionnaire and any supporting evidence. The responses to question S.1 varied in nature and degree of quantification. However, it was possible to allocate many to the following four progress-related categories: 'no significant progress', 'little progress', 'substantial progress', and 'objective achieved or largely achieved'. Some answers indicated that steps were being taken to implement the measures, but did not provide sufficiently clear information to reliably judge the degree to which the objectives are currently met, and these responses were categorised as 'some progress but amount uncertain'.

The opinions expressed in the online public consultation are primarily used to support the assessment of subjective aspects of the evaluation of progress, such as the expected rate of progress.

5.1.3 Analysis of the question according to available evidence

5.1.3.1 What progress have Member States made over time towards achieving the objectives set out in the Directives and related policy documents?

5.1.3.1.1 Progress towards the establishment of the Natura 2000 network

As described in section 2.3 a key objective of the Nature Directives is the establishment of Natura 2000, which comprises a coherent network of SPAs designated under the Birds Directive (for species listed in Annex I of the Directive and regularly occurring migratory species), and SACs designated under the Habitats Directive hosting habitats and/or species of Community interest (listed in Annexes I and II of the Directive respectively).

Special Protection Areas

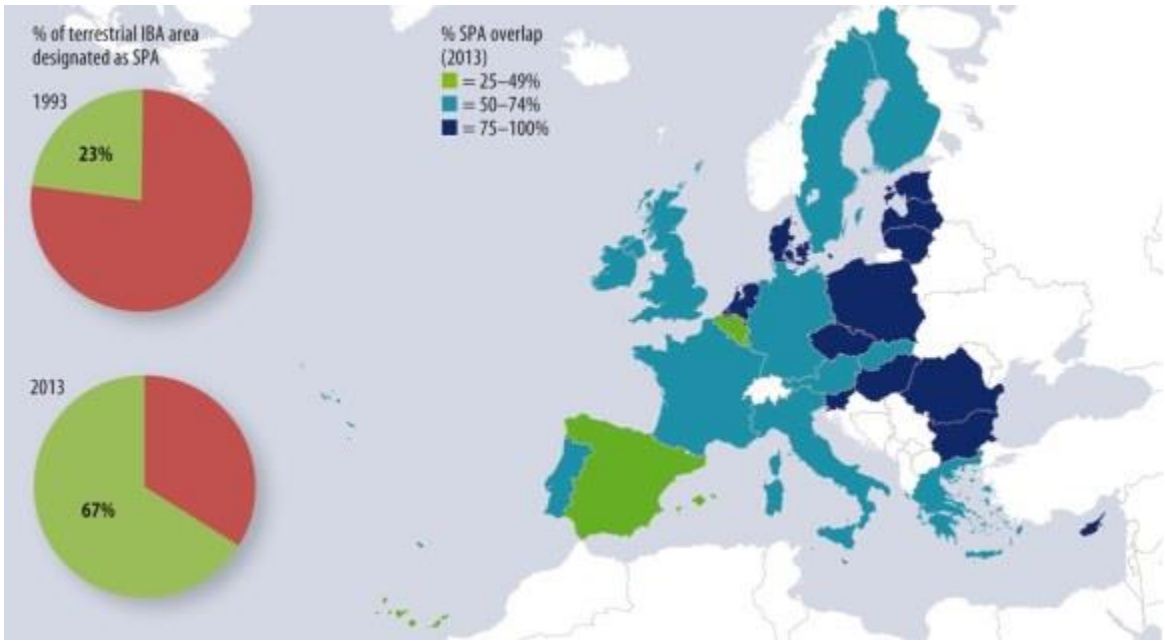
The Birds Directive requires Member States to select the 'most suitable territories' as SPAs on the basis of ornithological criteria. For example, the Directive refers to wetlands of international importance, providing a link to ornithological selection criteria under the Ramsar Convention. However, the Birds Directive does not set out explicit criteria for the identification of SPAs or for assessing the adequacy of their combined coverage.

Although not foreseen, the Commission has assisted with the identification of SPAs by supporting the development of scientific criteria and the compilation of ornithological information since the early 1980s. This contributed to the publication in 1989 of an inventory of Important Birds Areas (IBAs) in Europe, produced by BirdLife International (Grimmett and Jones, 1989). In the absence of national scientific references, these served as key references to inform SPA identification, a fact that was recognised in a European Court of Justice (CJEU) ruling in 1998 on the adequacy of the Netherland's SPA network[119]. This confirmed that, although not legally binding on Member States, the IBA inventory represents a list of most suitable territories for the conservation of wild birds in the EU. In that case it was used to assess whether or not the Netherlands had fulfilled its obligation to classify SPAs. BirdLife published an updated list of IBAs in 2000 (Heath and Evans, 2000) and the Commission has continued to use the IBA inventory as a scientific reference list, including using it to issue written warnings to Member States and start infringement procedures (see further discussion below under section 5.1.3.2).

The adequacy of the SPA network can, to some extent, be judged by its coverage of the IBA network, although the IBA list is not legally binding. Up-to-date, detailed and comprehensive data on terrestrial IBA coverage by SPAs is not available, but a BirdLife assessment in 2013 found that 67% of IBAs were classified as SPAs (Birdlife International, 2013). However, as indicated in Figure 14, many countries at that time had less than 75% coverage, with two (Spain and Belgium) having less than 25% coverage.

[119] C-3/96, Commission v. Netherlands [1998], ECR I-03031.

Figure 14 The overlap between IBAs and SPAs in the EU in 1993 and 2013



Source: (Birdlife International, 2013)

A BirdLife International assessment of the protection of marine IBAs found that 59% are currently protected in the EU as SPAs (Tarzia and Campos, 2014), indicating substantial progress overall, but there is considerable variation in overlap amongst Member States (See

Table 3).

Table 3 The percentage overlap between marine Important Bird and Biodiversity Areas (IBAs) and coastal and marine SPAs

Member State	% Overlap between SPAs and marine IBAs
Croatia	100
Romania	99
Bulgaria	98
Belgium	95
Latvia	90
Spain	90
Poland	89
Germany	88
Netherlands	77
Estonia	72
Slovenia	67
UK	64
Finland	56
Italy	54
Ireland	50
Lithuania	49
France	38
Denmark	34
Sweden	33
Portugal	25
Greece	22
Malta	<1
Cyprus	0

Source: Tarzia and Campos (2014)

Although it appears that further expansion of the SPA network remains necessary, especially in the marine environment, it should be borne in mind that the IBA criteria are not entirely consistent with SPA identification requirements. For example, some IBA trigger species are neither Annex I listed species of the Birds Directive nor migratory species (e.g. Siberian Jay), and some IBA thresholds are also lower than those used for SPAs. Some IBA boundaries are also only approximately delineated. Consequently, comparisons between IBAs and SPA designations need to be treated with caution.

In conclusion, despite the lack of criteria in the Birds Directive for identifying SPAs and assessing their combined adequacy, and the problems associated with comparing IBAs and SPAs, it is evident that substantial progress has been made towards the objectives of Articles 3 and 4 of the Birds Directive. Although more IBA sites need to be designated as SPAs, the information available does not allow for reliable quantification of the area of additional SPA coverage that is currently required.

Sites of Community Importance

To facilitate a more standardised, coordinated and biogeographical approach to their selection, criteria for the selection of SCIs are provided in Annex III of the Habitats Directive[120]. These criteria relate to two stages. Stage 1 is an assessment at national level of the relative importance of sites for each Annex 1 habitat and Annex 2 species. Stage 2 is an assessment of the nationally proposed SCIs in relation to their importance within biogeographical regions and for the EU area as a whole. Further elaborated Stage 2 criteria have been developed by the ETC-BD for terrestrial sites and marine sites[121][122].

The objectives of the Habitats Directive, along with the site selection process, makes the evaluation of the sufficiency of the SCI network in each Member State and across biogeographical regions complex, and it cannot be tested by simple indicators such as area or percentage coverage. Instead, the assessment of sufficiency is primarily through expert judgement and negotiation between the Commission (with assistance from the ETC-BD) and Member States, supported through biogeographical seminars. Therefore, although the State of Play chapter indicates that the terrestrial Natura 2000 area now covers 18% of the EU, with 6% of the EU's seas covered by marine Natura 2000 sites (EEA, 2015a), the principal criterion for assessing progress towards achievement of the objectives of Article 4 of the Habitats Directive, is whether or not DG Environment, with the assistance of the ETC-BD judges the SCI network to be sufficient[123].

Unpublished data from the European Commission, provides an assessment of the sufficiency of the network, primarily as at December 2013. This is reproduced in Figure 15, with sufficiency expressed as the percentage of habitats and species that require SCIs for which further areas need to be designated in order to complete the network in that country. A scientific reserve requirement is also indicated when further research is needed in order to identify the most appropriate sites to be added for a given species. The percentage of habitats and species requiring additional sites does not give any indication of the area of additional sites required.

The results indicate that 20 Member States require no additional areas for 90% of their terrestrial habitats and species of Community interest. Three countries require additional

[120] Sites are selected with the aim of maintaining or restoring the Favourable Conservation Status of habitats and species within the following nine biogeographical regions: Alpine, Atlantic, Black Sea, Boreal, Continental, Macaronesian, Mediterranean, Pannonian and Steppic. See http://ec.europa.eu/environment/nature/natura2000/sites_hab/biogeog_regions/index_en.htm accessed 17.02.16
[121] http://bd.eionet.europa.eu/activities/Natura_2000/pdfs/Hab.97-2.pdf
[122] http://bd.eionet.europa.eu/activities/Natura_2000/pdfs/Additional_marine_guidelines.pdf
[123] European Commission 2015. The mid-term review of the EU Biodiversity Strategy to 2020. COM/2015/0478 final, 2.10.2015.

areas for more than 20% of their habitats and species, namely Slovakia, Austria and Cyprus.

Figure 15 Sufficiency of the Sites of Community Importance (SCI) component of the Natura 2000 network

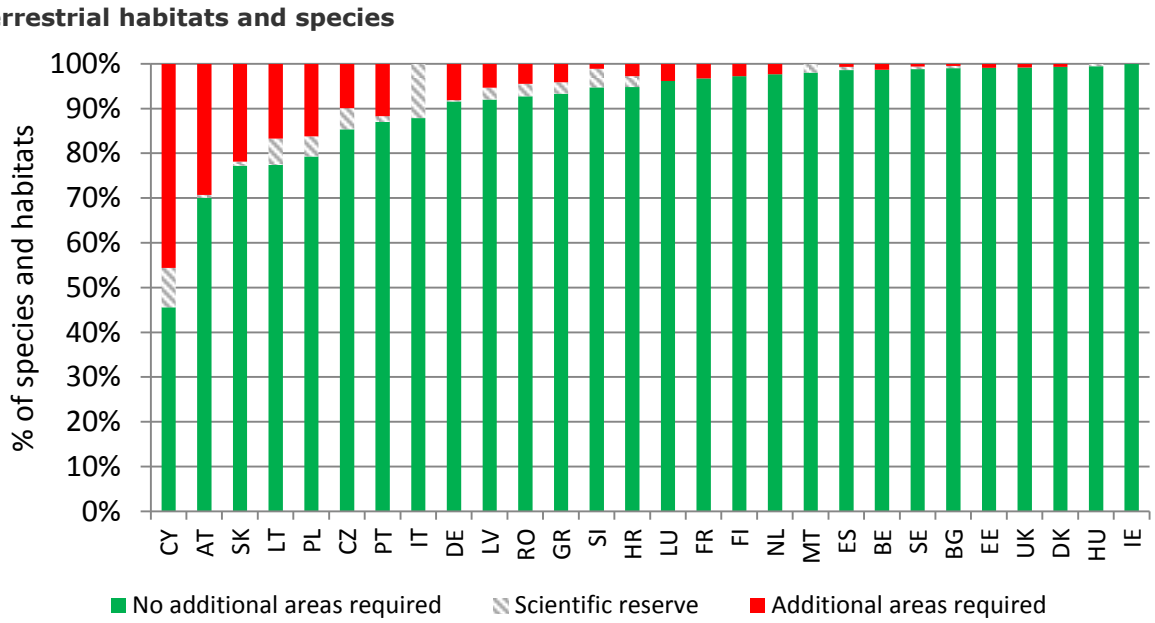
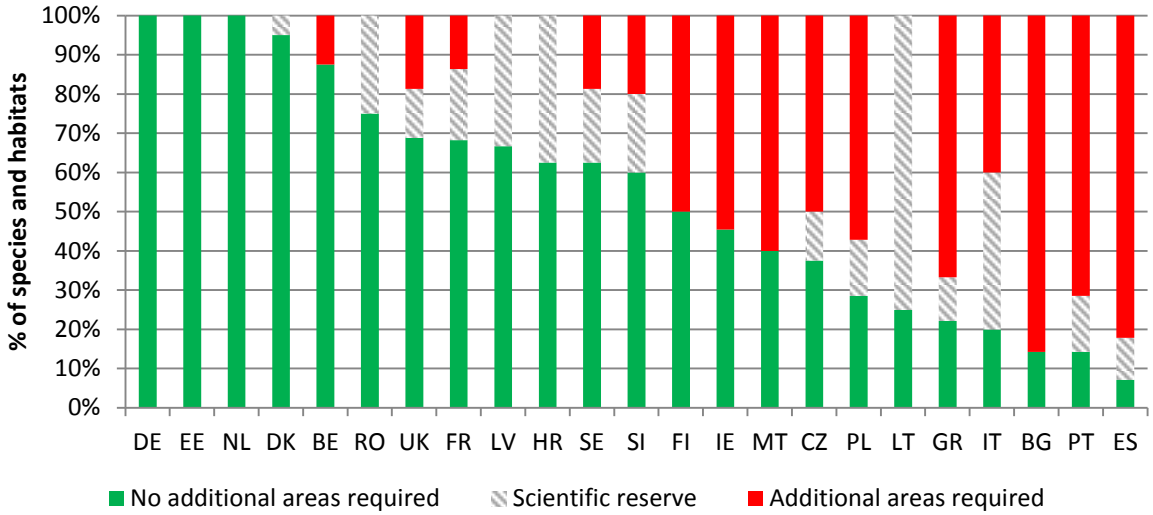


Figure 16 Marine habitats and species



Source: European Commission data relating to December 2013, except for Poland, Italy, Austria and Finland, whose data are from 2011 or earlier.

Not surprisingly, given the ongoing development of the marine network, a large number of Member States need to identify additional SCIs for their marine habitats and species. Figure 15 indicates that four Member States require no additional areas for 90% of their marine habitats and species of Community interest, while 11 require additional areas for more than 20% of their habitats and species. Two gap analysis studies have also revealed that Annex I marine habitats in the offshore zone (i.e. more than 12 nautical miles from the shore) are under-represented in the Natura 2000 network (EEA, 2015b; Evans et al, 2011). Coverage of Annex II marine mammals also remains insufficient (Evans et al, 2011).

On the basis of the SCI biogeographical seminar process, the 2015 State of Nature Report [p.119] notes that 'the terrestrial component of the network is considered close to complete, while further marine sites are required'. The objective of establishing the Natura 2000 network under Article 4 of the Habitats Directive has, therefore, largely been achieved on land, at least in terms of coverage of habitats and species of Community interest.

Designation of Sites of Conservation Importance as Special Areas of Conservation

It is a requirement under Article 4(4) of the Habitats Directive for Member States to designate their SCIs within six years of their adoption by the Commission. As the first lists of SCIs were produced over 10 years ago, a substantial proportion should now be SACs. However, according to an analysis by the EEA in the 2015 State of Nature Report, based on information reporting the state of play before the end of 2012, 48% of current SCIs had not yet been designated as SACs. Four Member States had designated all of their SACs (Slovenia, Latvia, Luxembourg and Hungary) and four more had designated over 90% of their SCIs (Denmark, Sweden, the UK and Estonia). But 14 of the EU-27 have designated less than 50% of the SCIs, with seven Member States reporting no designated SACs (Ireland, Italy, Finland, Bulgaria, Romania, Poland and Malta). In some cases these sites have national designations, but in other cases the sites have no other protection. Despite this slow progress with SAC designations, only one CJEU ruling has been made on this issue, in September 2011 for the Macronesian region of Spain, with the court upholding the Commission's complaint that Spain had failed to designate its SCIs as SACs within six-years[124].

Detailed updated information submitted to the Commission by the 15 Member States for which the six-year deadline first expired has confirmed that SAC designation has advanced in recent years in these Member States, but it is still far from being complete[125][126]. In particular, only five of these 15 Member States have designated all the sites for which the deadline has expired (Denmark, Greece, Luxemburg, Sweden and the UK), while another five have designated less than 50% of the sites for which the deadline has already expired (Belgium, Germany, Ireland, Italy and Portugal). In 2015 the European Commission opened new infringement cases against eight Member States for insufficient progress in the designation of SACs and the establishment of conservation objectives and measures in several biogeographical regions[127].

It is beyond the scope of this evaluation to investigate the reasons for the slow designation of SCIs as SACs, but a number of evidence gathering questionnaire responses point to uncertainties over the legal requirements for designation and/or the generally slow or inappropriate transposition of the Directives (see section 3.2 of this study). However, Schoukens and Woldendorp (2014) suggest that it may be due to economic reasons, as Member States prioritise these over ecological criteria when designating SPAs and SACs.

The impact of the Directives on protected area coverage

A further important consideration is whether or not the Nature Directives resulted in an increase in protected area coverage beyond that which would have occurred in their absence. A comparison of the observed increase in protected areas with such a counterfactual scenario is difficult, and, to our knowledge, has not been investigated comprehen-

[124] Case C-90/10, Commission v. Spain [2011] ECR I-00134*.
[125] The 15 EU Member States for which the six-year deadline first expired were Austria, Belgium, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Portugal, Spain, Sweden and the UK.
[126] Noelia Vallejo, pers. comm. DG Environment.
[127] Infringement cases No: 2014/2260 against Greece; 2014/2262 against Germany; 2015/2002 against Portugal; 2015/2003 against Spain; 2015/2006 against Ireland; 2015/2007 against Belgium; 2015/2030 against the United Kingdom; and 2015/2163 against Italy.

sively. However, there is evidence that protected area coverage increased substantially in several Member States after the Directives came into force or the country acceded to the EU, including Croatia, Estonia, Spain and the UK (EEA, 2012; Underwood et al, 2014). The issue is discussed further in relation to the EU added value of the Directives (see section 9.1).

The evidence gathering questionnaire responses on the extent to which the objectives relating to the establishment of the SPA network under the Birds Directive, and the SCI network under the Habitats Directive, are being achieved, are set out in Table 4 below. Most respondents considered that there has been substantial progress or that the objectives have beenachieved or largely achieved, although some noted that some terrestrial and significantly more marine sites need to be added, particularly to the SCI network. There appears to be no significant difference in response between the NGO and nature authorities. These results are consistent with the evidence discussed above, and many of the responses refer to the Member State implementation reports and the 2015 State of Nature Report as supporting evidence.

Table 4 The percentage of evidence gathering questionnaire responses allocated to each category of progress relating to the establishment of the SPA and SCI networks

	Birds Directive Article 4(1)			Habitats Directive Article 4		
	Nature Protection Authority	Other public authority	NGO	Nature Protection Authority	Other public authority	NGO
Number with a clear answer to the question	22	2	20	22	3	19
No significant progress	0%	0%	0%	0%	0%	0%
Little progress	0%	0%	0%	0%	0%	0%
Substantial progress	50%	0%	40%	50%	33%	47%
Objective achieved or largely achieved	23%	50%	35%	32%	0%	21%
Some progress but amount uncertain	27%	50%	25%	18%	67%	32%

Note: None of the responses from private enterprise / industry stakeholders expressed a clear view on the progress that has been made towards the establishment of the SPA and SCI networks.

The results from the online public consultation were not as consistent with the assessments and literature. According to the report on the online public consultation (Table 27), the majority of respondents to Q15 consider the Directives to have been 'somewhat' effective' in establishing an EU wide network of protected areas (53%). But 33% considered they have been 'very effective', whilst only 7% think they were 'not very effective' and 4% regarded them as 'not at all effective". Care needs to be taken with the interpretation of the online public consultation results, due to the large differences in the number of responses from the various interest/activity groups. For example, comparisons of the results amongst the groups indicates that NGOs had a more positive assessment than other groups, with the majority (56%) considering that the Directives had been very effective in establishing a protected area network. The majority of respondents in each of the other groups considered them to have been somewhat effective. The reasons for

these answers are not known, but they might reflect the slow identification of sites (and slow designation of SCIs as SACs) and the current deficiency in marine sites.

Conclusion

There is reliable evidence from Member State reports to the Commission that substantial progress has been made in the identification and designation of SPAs, and the identification of terrestrial SCIs, although further sites need to be added to the network. Progress is also being made towards establishment of the marine component of the network, but is much less advanced in most Member States. Although there appears to be no clear justification, there has been inadequate implementation of the Habitats Directive requirement to designate SCIs as SPAs within six years. Despite the partial achievement of the Nature Directives' objectives relating to the establishment of the Natura 2000 network, a substantial increase has occurred in the extent of protected areas in the EU, which is at least in part as a result of the implementation of the Directives.

5.1.3.1.2 Progress towards site protection objectives

Member States have taken a number of approaches to ensuring the protection of SACs and SPAs, in accordance with the requirements under Article 6(2) of the Habitats Directive. The 13 countries which have joined the EU since April 2004 have often achieved a substantial integration of their Natura 2000 areas into their previously existing protected area system through regulation, sometimes by creating new national designations. By contrast, most of the EU-15 countries (i.e. the older EU Members) have half or more of their Natura 2000 network outside of their nationally-designated protected area network, using contractual and/or administrative means rather than legal instruments to protect sites (European Commission, 2014a). Croatia has only recently starting establishing its Natura 2000 network, and is exploring different approaches to designating and managing Natura 2000 sites (Underwood et al, 2014).

Both SCIs and designated SACs and SPAs are legally protected from damage to their protected habitats and species from new plans or projects by the provisions of Articles 6(3) and 6(4) of the Habitats Directive. Articles 6(2), 6(3) and 6(4) also apply to SPAs. As discussed in section 3.3, there has been considerable controversy and confusion over the interpretation and implementation of these measures, particularly regarding Article 6(3), resulting in transposition problems, CJEU cases and numerous interventions from the Commission. Article 6(3) was the subject of 16% (43) of examined breaches of the Habitats Directive (see Figure 12). Particular problems occurred with respect to the required quality of Appropriate Assessments (AAs) (see below) and the application of the precautionary principle (i.e. the need to remove all reasonable scientific doubt over a potential impact) (European Commission, 2006; IEEP, 2011)[128]. Other issues that have resulted in CJEU cases include the relationship between Article 6(2) and Article 6(3), the plans or projects that are subject to Article 6(3), the significance of the effects in view of a site's conservation objectives, interpretation of adverse effects on the integrity of the site, the consideration of alternatives, interpretation of the term 'imperative reasons of overriding public interest' and the requirements for compensatory measures.

In response to these problems, the Commission produced a number of general Guidance documents to help to clarify these issues (European Commission, 2001; European Commission, 2007a; European Commission, 2014b), as well as a series of sector specific Guidance documents, and reviews of the CJEU rulings on Article 6, the most recent of which was published in 2014 (Sundseth and Roth, 2014) and which summarises the legal jurisprudence that has been built up over the years[129]. Many of the respondents consid-

[128] E.g. Case C-127/02, Waddenvereniging and Vogelbeschermingsverenging (concerning the Waddenzee) [2004] ECR I-07405.
[129] http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm#art6 accessed 17.02.16

ered these to be very helpful in terms of clarifying areas of uncertainty and providing examples of good practice. Some Member States have produced specific guidance, based on that of the Commission, and tailored to their national circumstances and processes. For example, in the UK the *Habitats Regulation Assessment Handbook* provides very detailed guidance for England, together with an associated Habitats Regulations Journal, which provides regular updates on the latest guidance, changes in regulation and training opportunities, etc[130].

To identify and tackle remaining issues concerning AA, the Commission carried out a fact-finding study in 2013, which gathered and reviewed information on the nature, extent and significance of the problems and burden associated with the Article 6(3) permitting procedure (Sundseth and Roth, 2013). Information was gathered through a literature review and interviews with authorities, economic operators and NGOs in 10 Member States, as well as representatives involved at an EU level[131]. The study's report also provided recommendations for improving the efficiency of the procedure and a range of examples of good practice.

The study found that there have been problems with the implementation of Article 6(3), the most frequent of which are listed in Box 4, although their relevance varies among the Member States and their regions. Many of the most significant problems are now historical, but Sundseth and Roth note that 'This legacy of the past unfortunately remains set in people's minds today, even though many of the initial problems have since been resolved, at least in the number of countries.' They therefore conclude, that among the 10 Member States studied, AA procedures are now generally working well and where problems occur they can normally be dealt with relatively easily.

Box 4 The underlying causes of problems with the Article 6(3) procedures

Historical problems (putting the system in place)

- An uncertain legal framework caused by slow designation of sites.
- Time taken to get used to new procedures.
- Poor or incomplete transposition into national law.

Ongoing problems

- Poor quality AAs.
- Lack of skills/knowledge/capacity on the Article 6(3) procedure.
- Poor/inadequate knowledge base on which to assess impacts.
- Problems during screening.
- Lack of assessment of cumulative and in-combination effects.
- Poor understanding of key concepts and legal terms.
- Lack of dialogue and integrated planning.
- The ineffectiveness of AAs for plans.
- Public opposition.
- Lack of coordination between permits.
- Inconsistent use of Article 6(4).

Source: based on headings used in Chapter 5 of Sundseth and Roth (2013).

The findings of the Commission's study are broadly consistent with conclusions from a DEFRA UK (HM Government, 2012) review of the implementation of the Habitats Directive in England, which included a detailed appraisal of AA procedures, the only recent national assessment of the procedures that has been published. The DEFRA study concluded that 'in the large majority of cases the implementation of the Directives is working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained.' As further discussed in a relation to question R.3 on sustainable development (see section 7.3), the findings also support the view

[130] http://www.dtapublications.co.uk/handbooks accessed 17.02.16
[131] Austria, Czech Republic, Germany, France, Ireland, Netherlands, Slovenia, Spain, Sweden and the UK.

that Natura 2000 does not, on the whole, act as a blanket ban on developments within these sites.

The study identified some remaining problems and, although these vary considerably from case to case, the most typical issues related to:

- Poor quality of the AA undertaken.
- Lack of skills/ knowledge /capacity in the Article 6(3) procedure.
- An inadequate knowledge base on which to assess impacts.
- Inconsistent screening of plans and projects.
- Lack of understanding of key concepts and legal terms.
- Persistent lack of assessment of cumulative effects.
- Confusion with the EIA/SEA procedure.
- Lack of early dialogue.
- Lack of effectiveness of AA in plans.
- Problems during public consultation.

Under Article 6(4) of the Habitats Directive, plans or projects that may have detrimental impacts on a Natura 2000 site may go ahead if there imperative reasons of overriding public concern (the so called 'IROPI test') and if there are no alternatives. Member States are also required to take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. The term 'compensatory measures' is not defined in the Habitats Directive, but Commission guidance has clarified that they are distinct from mitigation measures (which are part of the project, and aim to avoid or reduce impacts) and should 'offset the negative effects of the plan or project so that the overall ecological coherence of the Natura 2000 Network is maintained' (European Commission, 2007a). Furthermore, the guidance states that the compensatory measures proposed for a project should: 'a) address, in comparable proportions, the habitats and species negatively affected; b) provide functions comparable to those which had justified the selection criteria of the original site, particularly regarding the adequate geographical distribution.' In accordance with the widely accepted principles of the mitigation hierarchy, they should be a 'last resort, i.e. only applied to residual impacts after appropriate mitigation measures have been taken.' Thus, the Article 6(4) compensatory measures can be considered to be analogous to offsets[132].

As discussed in section 3.3.1 there have been a number of infringement cases relating to Article 6(4), comprising 8% of the breaches examined in this study (see Figure 12). The resulting case law has clarified a number of issues, including the need for demonstrable assessments of alternatives, the nature of the IROPI test, and the factors that must be taken into account in considering compensation requirements.

Three legal studies have cast some doubt on the correct application of Article 6(4) by Member States and scrutiny by the Commission. Krämer (2009) examined the opinions which the Commission had issued under Article 6(4) and the Member States' reasoning for justifying the derogation in the light of CJEU rulings, concluding that 'probably not one of the cases submitted would have been accepted by the Court'. From a review of CJEU and Commission opinions and guidance on the IROPI test, and its application in the UK, Clutten and Tafur (2012) found that an increasingly wide interpretation is being taken of the meaning of IROPI, and neither the CJEU nor the Commission appear to be pre-

[132] According to the Business and Biodiversity Programme, biodiversity offsets are measurable conservation outcomes of actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. http://bbop.forest-trends.org/pages/biodiversity_offsets accessed 17.02.16

venting this. Similarly, a study by McGillivray (2012) also suggested that the problems concerning Article 6(4) may have been exacerbated by weak enforcement by the Commission. The study analysed 15 publicly issued opinions by the Commission in relation to the Article, finding that the opinions lacked transparency and that there were concerns regarding the Commission's responses to compensation functionality, proponent bias, economic influence and monitoring and enforceability.

The current effectiveness of Article 6(4) measures relating to the appropriate interpretation of the IROPI test and the implementation of compensatory measures to maintain the integrity of the Natura 2000 network, is very difficult to assess, as clear information on its application is lacking. Although Member States are required under Article 6(4) to inform the Commission of any compensatory measures they take in relation to projects which have a significant negative residual impact on Natura 2000 sites, most do not appear to have done so (European Commission, 2008b). According to the Commission, the information provided on Article 6(4) measures taken between 2004-2006 was often 'partial, vague and insufficient'. Despite the lack of clarity in the information provided, the reports raised concerns that some of the compensatory measures proposed were not compensation measures (instead being mitigation measures that may have only partially reduced impacts), were not related to the impacts caused by the project, or were not able to offset its impacts on the negatively affected habitats and species. Some compensatory measures were simply actions that should be normal practice under the Birds and Habitats Directives in any case (such as the preparation of management plans).

Subsequently, the Commission provided its guidance on Article 6(4) (European Commission, 2007a) and this included a standard form for submitting information. As a result, the latest Commission report summarising implementation of Article 6(4) from 2007-2011 (European Commission, 2012a) notes that there has been an improvement in the quality of the information provided. However, only six Member States submitted reports (Germany, France, Italy, Poland, Spain and the UK) and it seems unlikely that compensation measures would not have been required in other Member States during the reporting period.

Despite improvements in the information provided, the Commission concluded that it remained incomplete with respect to the project's estimated potential adverse effects (including cumulative impacts), mitigation measures, the assessment of alternatives to the project and the justification for allowing the project to go ahead on the grounds of it being of imperative overriding public interest. The compensatory measures were reasonably well described in broad terms, and appeared to address the habitats and species that were negatively affected in most of the cases. However, as a result of other shortcomings, the Commission concluded that 'it was not always possible to assess how the proposed measures will compensate the adverse effects on the integrity of the site and how the coherence of the Natura 2000 network will be preserved'. The Commission also noted that most of the reports did not describe the existing conditions in the compensatory areas, nor the techniques and methods that would be used to carry out the compensation. This made it 'difficult to assess their actual feasibility and possible effectiveness'. One possible reason for this is that the European Commission's 2007 guidance does not indicate how losses/gains should be measured, e.g. metrics, or how equivalency of gains and losses should be determined.

More recent evidence of problems with compensatory measures comes from a study in France of compensatory measures (Regnery et al, 2013). This found that the measures does not always result in adequate offsetting of all species of Community interest, that only 35% of development projects considered all affected species in their offset measures, and that some impacts on endangered species were not offset.

The evidence reviewed above indicates that, despite some deficiencies, the implementation of the Directives has to an increasing extent, resulted in protection of Natura 2000 sites and compensation for unavoidable residual impacts on EU protected habitats and species. However, it is also important to consider whether such protection would have

occurred in the absence of the Directives. As the counterfactual scenario is difficult to reliably define, so too is an assessment of the added value of the Directives. Evidence from some studies and responses to the evidence gathering questionnaire, however, suggests that the protection now given to Natura 2000 sites is considerably greater than that given to the protected areas that existed at the time in many Member States, such as in the UK and the Netherlands (Underwood et al, 2014).

Until recently, the only Member State with legal requirements for compensatory measures for biodiversity impacts was Germany (Conway et al, 2013; Tucker et al, 2014). Offsetting has been mandatory in Germany since 1976 for all development projects, such as roads, industry, wind turbines and housing (but excluding agriculture, forestry and fisheries) (Albrecht et al, 2014; Wende et al, 2012). In France, regulations concerning the mitigation of development impacts have been more recently progressively introduced, with offsets now required for impacts on forests, wetlands and protected species, among others, although there are concerns about their effectiveness (Quétier et al, 2014; Regnery et al, 2013). Other Member States have little or no offsetting requirements, and therefore it is evident that, despite the apparent deficiencies in its implementation, Article 6(4) provides added value in terms of its requirements for compensatory measures for residual impacts on EU protected habitats and species within Natura 2000 sites.

Seven respondents commented on the extent to which the specific objectives of Articles 6(3) and 6(4) of the Habitats Directive are addressed, and only four gave answers that could be reliably interpreted in terms of the amount of progress being made (nature NGOs from the UK and nature authorities from Cyprus and the Czech Republic). Each of these indicated that the related objectives have been fully met, but may have referred primarily to effective transposition of the articles, rather than the efficacy of the measures. While the other responses indicated that progress was being made towards the objectives, it was not possible to quantify this.

The combined results of the online public consultation do not correspond to either the literature described above or the responses to the evidence gathering questionnaire. Of the 16,815 responses to Q15, 'How effective have the Directives been in regulating the impact of new plans and projects on Natura 2000 sites?' the most frequent response (49%) was that they have been 'not very effective' and a further 6% considered them to be 'not at all effective'. More positive responses were provided by 18% who considered they have been 'somewhat effective' and 22% thought they have been 'very effective'. However, these combined responses mask significant differences in the views of the different interest / activity groups. As indicated in Table 63 of the online consultation report, those from agriculture and forestry, and angling, fish farming, fishing and hunting all stated that they had 'not been very effective' (76% and 64% respectively). In contrast, the majority of those from nature and environment, and construction, extractive industry and transport groups considered that they have been 'very effective' (47% and 48% respectively). It is not known why these views differ so much, but the response from the agriculture and forestry sector may reflect the fact that AA procedures tend to be applied to construction and extraction industry projects and plans, and not to land use related developments.

In summary, there is reasonable evidence that the provisions of Article 6(3) are generally being implemented and working well, giving relatively high levels of protection to sites of EU importance, as envisaged by the Directives. The situation regarding progress with the derogation provisions under Article 6(4) is less clear, but while they seem to be generally followed, there are some concerns over their legal interpretation, the adequacy of Member State compensatory measures and the Commission's limited enforcement of the provisions.

5.1.3.1.3 Progress towards site management objectives

Once designated an SAC, Member States are required to proactively take positive conservation measures on the sites. Under Article 6(1) of the Habitats Directive they must establish the necessary conservation measures, including, if necessary, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the habitat types and species for which the site has been designated. The starting point for the development of effective site management (and hence the related management plan) should be the establishment of conservation objectives for each of EU protected habitats and species for which the site was designated. Without clearly defined conservation objectives it is not possible to identify and prioritise appropriate protection, management and monitoring requirements. Conservation objectives should normally be defined both at the site level and at a higher level, e.g. the regional or national government level and/or for the biogeographical zone/region (European Commission, 2012b; Louette et al, 2011).

Member States have a considerable degree of flexibility in terms of how they establish the required conservation measures within each site. A European Commission study (European Commission, 2014a) and responses from the evidence gathering questionnaires indicate that a variety of approaches have been taken in this regard. Although it is not mandatory, the Commission strongly recommends the development of management plans, as they provide a useful and transparent tool for defining conservation objectives and agreeing management measures and priorities, in consultation with landowners and other stakeholders (European Commission, 2014b).

Although many Member States have adopted the use of management plans, their recent implementation reports indicated that only 30% of SPAs (1624 sites) and 41% of SCIs (9271 sites) were reported to have management plans in place at the end of 2012 (EEA, 2015a). This might be expected, however, as good plans take time to develop, in part because they require stakeholder consultations and participation. Consequently a similar number of SPAs and around half as many SCIs were reported to have management plans under preparation; however, this is likely to be an underestimate, as not all Member States reported this information. At least six Member States reported over half of their network with plans at the end of 2012. Some Member States have made particularly good progress, such as Slovenia, which reported that all of its SPAs and SCIs are covered by plans, and Denmark, Finland and Sweden, with coverage above 80% for SPAs and above 75% for SCIs. In contrast, Poland has less than 10% of its network area with established plans, but many plans in preparation, and Ireland reported that it has no plans finalised nor in preparation.

Quantitative comparable EU wide information on the establishment of conservation and restoration measures (e.g. agricultural and forest management, removal of alien species, disturbance control measures) in Natura 2000 sites does not appear to be available. Nevertheless, it is apparent from Member State implementation reports and responses to the evidence gathering questionnaires that effective conservation measures are in place in some sites (e.g. through management agreements supported by agri-environment climate schemes (see section 8.4.3.1). However, in many other sites they have yet to be fully put into place, often as a result of the slow progress on the development of management plans (European Commission, 2014a) (see section 5.3). Of the 32 respondents that provided an indication of progress with the Habitats Directive Article 6(1) and 6(2), 19% thought little progress had been made, whilst 28% thought substantial progress had been made. Most (50%) indicated that progress was being made, but they did not clearly quantify this.

The views from the online public consultation on the effectiveness of management and restoration measures were more positive than on other measures. The majority response (61%) considered the Directives had been 'somewhat effective' in managing and restoring Natura 2000 sites. However, an analysis of the responses from different interest /

user groups (Table 63) indicates that a sizable proportion of those from nature and environment, and construction, extractive industry and transport groups considered them to have been 'very effective' (39% and 43% respectively). By contrast, no more than 4% thought they had been 'very effective' among those from the agriculture and forestry, and angling, fish farming, fishing and hunting groups.

In summary, it is difficult to assess the rate of progress that is being made towards the establishment of site objectives and practical conservation measures in Natura 2000 sites. However, the available evidence and views of stakeholders suggests that moderate progress appears to have been made.

5.1.3.1.4 Progress towards objectives relating to the enhancement of the coherence of the Natura 2000 network

As discussed in relation to the Directives' objectives (see section 2.3), both the SPA network and the overall Natura 2000 network (including SPAs) should be coherent, and the Habitats Directive includes specific measures to achieve this, in particular through the criteria for proposing and selecting sites. In addition, under Articles 3(3) and 10 of the Habitats Directive, Member States should, where necessary, improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora. Although the need for action on this is, to some extent, discretionary, a DG Environment commissioned report concluded that such measures should be taken where it is necessary to achieve Favourable Conservation Status of habitats and species (Kettunen et al, 2007). As habitat fragmentation is a widespread pressure that contributes to the unfavourable status of many habitats and species, there is a need for further action to address this and increase the coherence of the network. A more recent legal study in the Netherlands concluded that 'generally, the development of ecological corridors is not an obligation. However, if not developing them seriously compromises the achievement of the goals pursued by the Union legislator, there is a duty to develop them. Furthermore, although in most of the cases their development is not an obligation, it can be argued that, in the light of the principle of sincere cooperation, the Member States have to perform a case-by-case assessment of whether the competence to develop ecological corridors should be exercised.'(Squintani, 2012).

A number of studies, including two reports for the Commission, have found that the measures in Articles 3 and 10 have been poorly implemented in many Member States (IEEP and Alterra, 2010; Kettunen et al, 2007). Although these reports are now over five years old, there is little evidence to suggest that the situation has changed, despite the new EU Biodiversity Strategy and the increasing recognition of the value of Green infrastructure and its potential to deliver economic benefits while also helping to maintain and increase ecological connectivity (Mazza et al, 2012). While some countries have initiatives to develop ecological networks (Bennett and Mulongoy, 2006; Catchpole et al, 2009; Jongman and Pungetti, 2004)(see Box 5), these often predate the Habitats Directive, have a broad range of ecological, environmental / ecosystem service and social objectives, and are implemented to varying degrees (IEEP and Alterra, 2010). Their impacts are also poorly monitored, making it impossible to ascertain the extent to which existing ecological networks contribute to Natura 2000 coherence requirements.

Box 5 Examples of initiatives to increase connectivity between protected areas

- The German ecological network concept identifies core areas of national biodiversity significance, areas with high restoration potential, and nationally and internationally significant corridors, which should cover at least 10% of the land area. At the moment protected core areas cover around 5.3% of the land, and a recent analysis has identified 22 areas where there are significant gaps. In addition, the ecological network requires the

establishment of corridors of extensively managed agricultural or forest land on around 4.5% of the land area. While the Länder share equal responsibility for this, the level of implementation and ambition varies significantly.

- The Netherlands has a long history of developing its ecological network, going back to 1990. But in 2010 the Netherlands Government cut the budget for the development of corridors in order to reduce costs and because it considered that the measures go beyond the requirements of the Habitats Directive (Bakker et al, 2015; Squintani, 2012). However, it has since published a government vision, with aims for an ecological network which uses systematic spatial planning to better link existing protected areas with agricultural areas under 'nature-friendly' management (Ministerie van Economische Zaken, 2014).

- France has recently passed national legislation that establishes a legal framework for an ecological network. The strategy envisages an expanding role for the national and regional nature reserves as core areas of the network, i.e. improving the connectivity of the protected areas with the greatest focus on biodiversity protection.

- The Estonian green network concept was developed in the early 1980s, based on a strong land-use planning tradition with wilderness and areas of conservation value considered to be core areas interlinked by natural and semi-natural landscapes. The Act on Planning and Building provides the legal background for the implementation of the network through the national spatial planning process.

Source: Underwood et al (2014) and additional references cited above.

The responses to the evidence gathering questionnaire also suggest that there has been little progress with the implementation of measures to maintain and increase the coherence of the Natura 2000 network. Of the 26 respondents who provide a clear answer on the implementation of these measures, 8% indicated that no progress had been, 19% thought that little been made. Most (58%) indicated that progress had been made, but it was not possible to deduce the amount from their response.

The opinions expressed in the online public consultation are also consistent with these findings. Under Q15, 62% of responses stated that the Directives had not been very effective in 'encouraging the management of landscape features outside Natura 2000 sites'. This was the majority view of all of the field of interest / activity groups, except for those related to construction, extractive industry and transport, who mainly considered the Directives to have been somewhat effective in this respect.

The assessment of the overall progress in terms of the coherence of the network is also difficult to evaluate because neither of the Directives defines the meaning of 'coherence' (see Box 1). Neither has the coherence of the network been comprehensively measured or assessed, although a number of modelling studies of connectivity have been carried out (Estreguil et al, 2013; Estreguil and Caudullo, 2013; Mazaris et al, 2013; Mullins et al, 2015; Opermanis et al, 2012).

Verschuuren (2013) suggests that while the Habitats Directive aims to establish a 'coherent ecological network', the above provisions do not necessarily lead to the creation of a real network, which the author considers should be 'a network that consists of interlinked areas.' However, this is in part the result of a narrow definition of coherence and a misunderstanding that connectivity needs to be through an unbroken physical connection, such as through corridors. But functional connectivity is more important, and that can also be provided by habitat patches (such as Natura 2000 sites) that act as stepping stones, or by ensuring that the wider matrix of habitats between sites is not a barrier to movement (Crooks and Sanjayan, 2006; Donald and Evans, 2006; Estreguil et al, 2013). In fact, one of the selection criteria for SCIs is their potential contribution to network coherence.

The evidence that wildlife corridors comprising hedgerows and other linear features - such as those referred to in Article 10 of the Habitats Directive - provide effective ecological connectivity benefits is mixed. A meta review of studies concluded that existing

corridors increase species movement in fragmented landscapes and that efforts spent on maintaining and creating corridors are worthwhile (Gilbert-Norton et al, 2010). But others have found little evidence of impacts or have queried the cost effectiveness and reliability of such measures (Davies and Pullin, 2007; Hodgson et al, 2009; Hodgson et al, 2011). Furthermore, the evidence of benefits tends to relate to common generalist species, whereas many European protected species have particular ecological requirements (e.g. relating to climate, soil type, hydrology, vegetation structure, food plants) and therefore typical corridors of hedges, ditches and tree lines, etc., are unlikely to provide suitable habitats. Consequently, when a recent review of the protected area network in England (Lawton et al, 2010) concluded that it was not sufficiently resilient and coherent, it recommended the following broad types of action in order of priority:

- Improve the quality of current sites by better habitat management.
- Increase the size of current wildlife sites.
- Enhance connections between, or join up, sites, either through physical corridors, or through 'stepping stones'.
- Create new sites.
- Reduce the pressures on wildlife by improving the wider environment, including through buffering wildlife sites.

Despite the lack of empirical evidence of the coherence of the Natura 2000 network, it is inevitable that the substantial increase in coverage of protected areas that has occurred since the Directives came into force will have increased its coherence to some extent. This is because an increase in the number and area of protected sites would be expected to increase their diversity of habitats, habitat conditions and species, due to the well-documented species-area relationship (Connor and McCoy, 1979; MacArthur and Wilson, 1967). Thus, they are more likely to provide the full set of ecological requirements of the target species (and others). Functional connectivity will also increase because the average distances between sites will inevitably decline, thereby facilitating movement between them (e.g. for feeding, migration, and emigration and colonisation) (Estreguil et al, 2013). The increase in sites will also increase the number of stepping stones, with larger sites more likely to support viable and resilient populations (Lawton et al, 2010) that will provide sources of emigrants that may, for example, help to maintain important meta-populations (Hanski, 1999a).

In conclusion, there is little evidence that Member States are taking additional measures to implement Articles 3 and 10 of the Habitats Directive, even though they appear to be necessary. Nevertheless, whilst it is not currently possible to quantify the degree to which the Natura 2000 network is achieving its objective of being coherent, it can be reliably predicted that progress is being made towards it, primarily through the increase in the quantity and quality of the sites in the network, and protected areas such as Natura 2000 sites have been acknowledged to form the backbone of the EU's Green infrastructure (Estreguil et al, 2013).

5.1.3.1.5 Progress towards species protection objectives

As indicated in the intervention logic of the Directives (Section [2.3]), in order to complement the conservation of particularly important sites for European protected habitats and species, both Directives include a second pillar of measures which focus on the protection of species wherever they occur, across the entire natural range of the species in the EU (i.e. inside and outside Natura 2000 sites).

In the Birds Directive, Articles 5-9, give a general level of protection to all birds while also aiming to ensure that hunting, or other forms of taking, are sustainable and in ac-

cordance with the principles of wise use and ecologically balanced control of the species concerned. In particular, Member States are to ensure that birds are not hunted during their breeding season, and that migratory birds are not hunted during their return to their breeding sites (in order to reduce the risk of significant population-level impacts). Large scale and non-selective methods of capturing and killing are also prohibited.

Like the Birds Directive, the Habitats Directive has measures that prohibit indiscriminate means of capture. Unlike the Birds Directive's other protection provisions, which apply to all birds, the Habitats Directives aims to ensure the strict protection of selected animals (Article 12) listed in Annex IVa and plant species (Article 13) listed in Annex IVb.

Both the Birds and Habitats Directives have derogation provisions from the species protection provisions that can be used by Member States in specific circumstances (e.g. to protect human health, crops, forests) but only if there are no alternatives.

General protection and the regulation of hunting

It is clear that the Birds Directive species protection provisions have been implemented in all Member States and have substantially changed hunting practices where this was necessary, primarily through limiting the number of huntable species, adapting hunting seasons and restricting unselective hunting methods. As discussed in section 3.3.2 the required changes led to numerous problems and conflicts, resulting in infringement proceedings and CJEU cases (European Commission, 2006). In response, the Commission launched a Sustainable Hunting Initiative in 2001 and, with other stakeholders, prepared a series of management plans for huntable species (i.e. those on Annex II) that are considered to have an unfavourable conservation status[133]. Despite these measures, a study of the status of birds in the EU in 2004 (Birdlife International, 2004) indicated that the status of Annex II species had worsened, with 46% having an unfavourable conservation status. To help address this, the two main organisations representing hunters and bird conservationists in Europe, the Federation of Associations for Hunting and Conservation of the EU (FACE) and BirdLife International, and with the encouragement of the Commission, signed an agreement on sustainable hunting in October 2004. At the same time, the Commission also produced guidance on hunting under the Birds Directive, which was updated in 2008 in response to important CJEU judgements (Batáry et al, 2007).

Responses to the evidence gathering questionnaires indicated considerable agreement among conservation organisations (including BirdLife International) that in all Member States current bird and mammal hunting-related conservation problems are much lower now than before the Nature Directives came into force in all Member States (Hirschfeld and Heyd, 2005; Magnin, 1991). Of the 34 respondents who provide a clear answer on progress towards achieving the species protection objectives under the Birds Directive, 35% thought that substantial progress had been made and 35% thought the objectives had been largely achieved. 29% indicated that progress had been made, but it was not possible to deduce the amount from their response. The overall response on species protection measures under the Habitats Directive was less clear. Of the 30 respondents, 10% thought that substantial progress had been made and 37% thought the objectives had been largely achieved. 47% indicated that progress had been made, but it was not possible to deduce the amount from their response.

Some respondents noted that in some countries hunting is no longer considered to cause any conservation problems. Also, some Member States have prohibited hunting in all Natura 2000 sites, even though the Directives do not require the automatic exclusion of hunting in Natura 2000 sites. This has led to some conflicts with hunting organisations, bringing the Directives into unjustified disrepute among some hunters.

Despite the improvements noted above, there are ongoing problems with the implementation of the Directives' species protection measures. Significant illegal hunting and re-

[133] http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/managt_plans_en.htm accessed 17.02.16

lated persecution and other forms of illegal killing and disturbance of species continue in many countries. A 2011 report by BirdLife International for the Council of Europe found that, at the time, the illegal hunting and taking of birds was widespread and affected all countries, although it was more intense in the Mediterranean region and South-East Europe. They concluded that the most important threats from illegal killing were poisoning, illegal trade and the violation of the hunting seasons and protected areas regimes that exclude hunting. A more recent study by BirdLife International (Birdlife International, 2015a) provides estimates of annual illegal killing in a number of Mediterranean countries: 5.4 million in Italy, 2.3 million in Cyprus, 0.7 million in Greece, 0.5 million per year in each of Croatia and France. It was not possible to examine the methods used to arrive at these estimates at the time of writing this report, as the underlying scientific report (Brochet et al, 2016) had not been published, making the accuracy and reliability of these estimates uncertain. Given the scale of the estimates, however, it is clear that substantial levels of illegal killing are still taking place in some countries in the EU.

A further concern is that the recent Article 12 reports on birds have revealed that the short-term population trends of 46% of the breeding bird taxa in Annex II are decreasing, a figure notably higher than the 30% that are decreasing across all breeding bird taxa (EEA, 2015a). Although a previous study has suggested that hunting contributes to population declines of some species (Raine, 2007), the extent of this effect is unknown. Many of the species concerned are affected by other pressures, such as agricultural intensification and land use changes or by factors operating in Europe and in their wintering grounds in Africa (Kirby et al, 2008; Vickery et al, 2014) (see section 7.1).

There are also documented cases of the ongoing persecution of birds of prey, with the intention of protecting game and livestock. For example, there is evidence of the illegal killing of birds of prey in the UK (RSPB, 2015a; RSPB, 2015b) and Hen Harriers in France (Bro et al, 2006), and illegal poisoning of birds of prey in Ireland (NPWS, 2013a) and of Spanish Imperial Eagles in Spain (González et al, 2007). Importantly, there is evidence that this can have population / range impacts, such as on the Hen Harrier in the UK (Natural England, 2008), where persecution is considered to be responsible for the species' absence from large areas of suitable habitat (Fielding et al, 2011; Potts, 1998). Poisoning of the Spanish Imperial Eagle has accidently caused a reduction in the range of several predators in the Iberian Peninsula, including the critically threatened Iberian Lynx (Rodríguez and Delibes, 2004; Villafuerte et al, 1998). The recovery of Red Kite populations in the UK has also been slowed as a result of illegal killing (Smart et al, 2010). Similarly, persecution is constraining the further recovery of some large carnivore populations, which has occurred in part due to their protection from hunting (Chapron et al, 2014). There are many documented cases of illegal killing of large carnivores, and evidence that in Scandinavia it is limiting the recovery of Wolves (Liberg et al, 2012). Further evidence of illegal killing and its population impacts is provide in question R.1 (see section 7.1).

These problems appeared to be reflected in the online public consultation results, as 49% of the respondents to Q15 considered the Directives to be 'not at all effective' in 'ensuring that species are used sustainably (e.g. hunting and fishing)'. However, there were large differences between the responses from different interest/user groups. Of the agriculture and forestry, and angling, fish farming, fishing and hunting groups, 75% and 74% respectively considered that the Directives had been 'not at all effective'. By contrast, the most frequent responses from the nature and environment, and construction, extractive industry and transport groups were that they were 'somewhat effective' (37% and 58% respectively).

Despite the ongoing cases of intentional illegal killing, no respondents to the evidence gathering questionnaire suggested that the species protection provisions within the Directives are the underlying cause. Instead, many noted that the key issue is ineffective implementation, in particular insufficient enforcement of the existing provisions, primarily by Member State authorities (but also by the Commission), combined with inadequate penalties for illegal activities (see section 5.3 for further discussion).

The protection of species from development impacts

Both Nature Directives aim to protect species from additional impacts of hunting and persecution, such as those related to built developments (housing, infrastructure, etc.) and extractive industries etc., which may cause direct mortality and/or the destruction or disturbance of their habitat. Detailed information on the effectiveness of the species protection measures with respect to these impacts is not available for most Member States. However, responses to the evidence gathering questionnaire suggests that the measures are being applied to potentially damaging developments and industrial activities, and appear to be generally working satisfactorily. This is in part due to a number of CJEU cases that have clarified the legal interpretation of the Directives' provisions (European Commission, 2006), as well as Commission guidance on Article 12 of the Habitats Directive (European Commission, 2007b). In fact, as a result of strict jurisprudence, there is a common perception amongst some developers that the legislation is being applied too strictly (including in relation to derogations) and commonly prevents development (Schoukens and Bastmeijer, 2014). But Schoukens and Bastmeijer note that in many cases this is not necessary if the developer can show that they have addressed the potential impacts on the species, which might be possible through changes to the project design or schedule.

A study of the application of Habitats Directive Article 12 measures in 10 Member States found that the measures are generally being implemented effectively, although the interpretation of the provisions varies across the countries (McConville and Tucker, 2015)[134]. In Germany, Estonia, Belgium (Flanders) and France, individual specimens do not necessarily have to be protected, provided it can be demonstrated that local and national conservation status will not be adversely affected. An alternative approach is adopted in the UK and Sweden, where there is strict protection of each individual specimen. This can lead to onerous requirements for mitigation and compensation. Such problems are particularly significant in relation to animal species that are relatively common, in at least some parts of their range. In addition, some Annex IV species (such as some amphibians and reptiles) are attracted to disturbed habitats (such as gravel workings) and this can create conflicts with industry. For example, there have been numerous conflicts over protection, mitigation and compensation requirements for the locally common Great Crested Newt in the UK (Beebee, 2015; Simpson, 2015; Watson, 2008). As further discussed under question Y.4 in section 6.4, protecting such species can result in high costs and burdens, which may be disproportionate to their conservation benefits. However, according to participants in the UK mission, these problems are now recognised by the nature authorities and nature conservation organisations, who are working together to develop a more streamlined approach that results in better conservation outcomes (i.e. enhancing the conservation status of the population) with reduced costs and delays for developers.

For the effective application of species conservation measures, information and knowledge on the distribution of the species, their status, trends and possible threats is required (Schoukens and Bastmeijer, 2014). This view is supported by evidence from several stakeholders, such as DEFRA UK, that problems with Annex IV species have been exacerbated by inadequate information on their location, as this has prevented developers from identifying and avoiding potential conflicts early in the planning process. In addition, a lack of knowledge about the distribution and status of a species and an absence of defined Favourable Conservation Status standards, has led to overly risk-averse decision-making, whereby the status quo is sought by protecting every individual, rather than trying to achieve Favourable Conservation Status of the population concerned – such as the case for the Great Crested Newt in the UK (Simpson, 2015). Examples of good practice that avoid such situations and produce better and more efficient conservation outcomes are given in section 6.5, and the effects of knowledge gaps on the efficiency of the Directives is discussed in section 6.8.

[134] Austria, Belgium (Flanders), Denmark, Estonia, France, Germany, Ireland, Italy, the Netherlands and Sweden.

In conclusion, although information is limited, the Nature Directives' species protection measures are being implemented in all Member States and generally appear to be effective. However, actions need to be taken to address the particularly poor status of birds listed in Annex II of the Birds Directive (irrespective of the causes), and to address ongoing illegal hunting of migratory birds in the Mediterranean region and the illegal killing of birds of prey and large carnivores in some Member States.

5.1.3.1.6 Progress towards financing objectives

The Birds Directive does not explicitly require Member States to secure financing for the implementation of the Directives, but this is implied in the measures that are required to achieve the Directive's objectives. However, Article 8 of the Habitats Directive does require Member States to identify the conservation measures that are necessary (in accordance with Article 6(1)) to maintain or restore priority habitats and species within SACs to Favourable Conservation Status, and to estimate their costs. This information is then to be used by the Commission to develop a Prioritised Action Framework (PAF) of measures that provided co-financing to the Member States.

The availability of funding for the implementation of the Directives is investigated under the efficiency criterion (see section 6.2) and the implementation of Article 8 is examined in detail in section 8.6). Therefore, the financing of the Habitats Directive is not discussed in detail here.

In summary, the evidence suggests that while there was an increase in funding for nature conservation, in particular through the LIFE programme and agri-environment schemes, the level of co-financing provided through the EU's funding instruments (under the integrated approach) has been insufficient. Consequently, levels of funding have limited the effectiveness and efficiency of nature authorities (e.g. in decision-making) and implementation of the Directives, particularly the establishment of CAP funded compensation / incentives for conservation measures within Natura 2000 sites (see section 5.3 for more detail). Currently available evidence discussed in section 8.6 suggests that the availability of EU funding for biodiversity conservation (and not just implementation of the Nature Directives) is lower for the 2014-2020 period in some Member States than for the previous period.

5.1.3.1.7 Progress towards research objectives

Under Article 10 of the Birds Directive Member States are required to encourage research and other activities that can inform protection, management and use of birds, particularly regarding the following topics (listed in Annex V):

- National lists of species in danger of extinction or particularly endangered species, taking into account their geographical distribution.
- Listing and ecological description of areas particularly important to migratory species on their migratory routes and as wintering and nesting grounds.
- Listing of data on the population levels of migratory species as shown by ringing.
- Assessing the influence of methods of taking wild birds on population levels.
- Developing or refining ecological methods for preventing the type of damage caused by birds.
- Determining the role of certain species as indicators of pollution.
- Studying the adverse effects of chemical pollution on population levels of bird species.

Similarly, Article 18 of the Habitats Directive requires Member States to encourage research and scientific work to support the objectives of the Directives. No detailed list of topics is provided, but the Directive states that particular attention should be paid to scientific work necessary for the implementation of Articles 4 and 10 and trans-boundary cooperative research between Member States.

It is clear from the evidence gathering questionnaire responses that the Directives stimulated a huge increase in research of relevance to the implementation of Directives. This is evident from the online bibliographic search carried out for this study, which found over 600 publications that include the term Natura 2000 in the title.

The evidence supplied by the respondents does not enable an assessment to be made of the degree to which the research has addressed the topics highlighted in the Directives. However, many respondents noted that a great deal of research was required to identify SPAs and SACs. A notable example of this has been the development of the Important Birds Area (IBA) inventories by BirdLife International. This is supported by a study by Popescu (2014), who conducted a systematic review of 572 scientific articles and conference proceedings focused on Natura 2000 research, published between 1996 and 2014. Popescu found that most of the studies (79%) were on ecological research, with a strong focus on spatial conservation planning. Studies addressing 'social and policy' issues were under-represented, and typically focused on environmental impact assessment, multi-level governance, agri-environment policy, and ecosystem services valuation.

5.1.3.1.8 Progress towards supplementary objectives

Under Article 22, the Habitats Directive has three supplementary objectives (operational objectives) which aim to support the other specific and operational objectives and in turn the general objectives of the Directives.

Species reintroductions

Under Article 22(a) Member States shall consider the desirability of re-introducing native species listed in Annex IV. Although it is not a mandatory requirement, a number of Member States have reported on their species reintroduction actions[135]. Whilst it is not possible to quantify the overall implementation of this measure, or success rates, it is clear that numerous re-introduction projects have been undertaken during the 2007-2012 period across the EU, often using LIFE funding (European Commission, 2011a).

For example:

- **Germany** reported reintroduction of Baltic Sturgeon (Tautenhahn and Geßner, 2014), Atlantic Salmon, Allis Shad (Scharbert, 2011), Eurasian Lynx and European Pond Turtle (Winkel and Kuprian, 2011)[136][137][138].
- **Denmark** has reintroduced the Beaver and Hermit Beetle[139].
- In **Italy,** the Brown Bear has been reintroduced in the **Italian** Alps through two LIFE+ projects, reconnecting the population with other alpine populations[140].
- In the **UK,** the Freshwater Pearl Mussel and White-clawed Crayfish were reintroduced in the Atlantic biogeographic[141].

[135] http://bd.eionet.europa.eu/activities/Reporting/Article_17/Reports_2013/Member_State_Deliveries#! accessed 17.02.16
[136] http://www.iksr.org/index.php?id=124 access 17.02.16; https://publikationen.sachsen.de/bdb/artikel/13551 accessed 17.02.16
[137] http://www.luchsprojekt-harz.de accessed 17.02.16
[138] http://www.lugv.brandenburg.de/cms/detail.php/bb1.c.313846.de accessed 17.02.16
[139] Response of Danish Society for Nature Conservation to Fitness Check
[140] LIFE96/NAT/IT/3152 and LIFE00/NAT/IT/007131
[141] Article 17 report from UK.

- In **Poland,** Eurasian lynx, Grey Seal, European Ground Squirrel, and other species have increased *inter alia* as a result of reintroduction and recovery activities[142].
- In western **Latvia** a reintroduction programme has resulted in successful establishment of a permanent wild population of European Tree Frog[143]**.**
- In **Portugal,** Iberian Ibex was reintroduced in Galicia and expanded to Peneda-Gerês National Park (Moço et al, 2014).
- **Slovenia** has reintroduced Eurasia Lynx with the help of a LIFE project[144][145]. Beavers have recolonized from Croatia and are spreading upstream along river corridors, as the result of a LIFE funded river restoration project (Gregore et al, 2010)[146].

Some species reintroductions in the EU have been controversial, and led to some conflicts with landowners and stakeholders (Pillai and Heptinstall, 2013). However, it is beyond the scope of this evaluation to assess how such issues may have affected the effectiveness of the reintroduction programmes.

Regulation of deliberately introduced non-native species

Under Article 22(b) Member States must ensure that any deliberate introduction into the wild of any non-native species must be regulated to protect native habitats and species within their natural range. Member States do not appear to have reported on this measure and no substantive information was provided in the responses to the evidence gathering questionnaire. The reason for this is unknown, but it may be that the measures have not been required as the deliberate introduction of non-native species into the wild is not normally considered to be acceptable, and would for example contravene IUCN reintroduction guidelines (IUCN Species Survival Commission, 2013).

Discussion of wider measures that are being taken to address invasive alien species (IAS) is included in question S.2 (see section 5.2).

The promotion of education and general information

Article 22(c) requires Member States to promote education and general information on the need to protect wild flora and fauna and to conserve their habitats. Although it is not a requirement, some Member States have reported their actions under this measure, which indicate that a range of initiatives have been taken, for example:

- **Austria** reported numerous actions, including initiatives to inform and manage visitor flows to protected areas in order to protect vulnerable species from disturbance, and educational activities with schools about Natura 2000 sites. The region Oberösterreich distributed comprehensive information on Natura 2000 for landowners. Salzburg holds an annual nature day with events and publicity on Natura 2000.
- **Bulgaria** has developed a national information and communication strategy for the Natura 2000 network for 2014 to 2023[147]. The lack of coordinated communication was identified as one of the principal factors affecting the establishment of the Natura 2000 network in the pre-accession period.

[142] Article 17 report from Poland.
[143] Evidence gathering questionnaire response from the Latvian Fund for Nature
[144] Evidence gathering questionnaire response from the Ministry of Environment, Slovenia.
[145] LIFE Links Lynx: Reinforcement, reintroduction and population level management of the dying out Dinaric - SE Alpine lynx population. LIFE Nature and Biodiversity project application. LIFE14 NAT/SI/000366.
[146] Evidence gathering questionnaire response of the Ministry of Environment, Slovenia
[147] http://dicon-bg.com/data/ufiles/files/NICS_digital.pdf accessed 17.02.16

- **Ireland** reported numerous biodiversity awareness initiatives ranging from events to a TV series[148]. The National Parks and Wildlife Service education centres provide educational programmes for schools and information on Natura 2000 sites for locals and visitors.
- **Malta** launched an education campaign to raise awareness about the importance and current state of Malta's biodiversity, as well as awareness-raising through the press, site information, and educational tours in protected areas (also a TV series).

5.1.3.1.9 Progress towards monitoring and reporting objectives

As described in section 2.3 the Habitats Directive has specific surveillance, monitoring and reporting requirements for which Member States must assess the conservation status of habitats and species of Community importance. These requirements have been further developed through the development of ETC-BD guidance and reporting forms, which now use a common terminology for assessing the status of habitats and species, as well as reporting on the pressures and threats that affect them, and measures being taken to address them (e.g. their development of management plans). The Birds Directive monitoring and reporting requirements are not as detailed or focused on the achievement of objectives. However, Member States agreed to align them with those of the Habitats Directive.

These monitoring and reporting requirements have been increasingly implemented in Member States according to the agreed procedures. As a result the most recent report for 2007-2012 provides a relatively comprehensive and reliable assessment of the status of most EU protected habitats and species for all EU countries other than Greece (EEA, 2015a)[149]. However, knowledge gaps, institutional capacity constraints and methodological issues remain (see section 6.8 for further discussion). As a result of these and other factors, the status of 16% of birds, 7% of habitats and 17% of non-bird species are unknown.

5.1.3.1.10 Progress towards the general objectives of the Directives

EU assessments and scientific studies

The overall judgement criterion for this evaluation question is whether progress is being made towards the achievement of the general objectives of the Directives, as a result of the combined impacts of the actions being taken to achieve the specific and operational objectives (as assessed above) and other influences (as set out in the intervention logic framework in section 2.3). In this respect, progress is primarily measured by reference to the results of the most recent reports by Member States under Article 17 of the Habitats Directive and Article 12 of the Birds Directive, as set out in the 2015 State of Nature Report (EEA, 2015a). Some of the key results are summarised here in the State of Play and in section 5.2 on Target 1 of the Biodiversity Strategy. Some key conclusions are:

- 15% of all assessed bird taxa are near-threatened, and 17% are threatened.
- 47% of Habitats Directive Annex 1 habitats have an unfavourable–inadequate status and 30% have an unfavourable–bad status.
- 42% of Habitats Directive Annex 2 species have an unfavourable–inadequate status and 18% have an unfavourable–bad status.

[148] http://www.noticenature.ie/ accessed 17.02.16
[149] Which provided its 2007-2012 report in 2015.

These results indicate that full achievement of the objectives of the Directives remains a considerable distance away. Results from monitoring schemes corroborate this conclusion and also suggest that the most severe problems are occurring in the wider environment. The common farmland bird index has shown a decline in populations of 57% between 1980 and 2013[150]. Grassland butterflies have declined by 50% between 1990 and 2011 and this reduction shows no signs of levelling off[151].

At first sight, some comparisons between the status of habitats and species of Community interest in the 2001 – 2006 period with the recent reporting for 2007-2012 suggest that the situation is improving. All but four Member States report some unfavourable habitat assessments that are improving, and all but one Member State report improvements in the status of non-bird species. However, these results should not be taken at face value, since comparisons of the status of species and habitats are complex. Although the level of knowledge has improved greatly since the previous reporting, there are still many gaps in knowledge and the status of many species remains uncertain (see section 6.8). Thus, the EEA concludes in the 2015 State of Nature Report that most of the recent favourable assessments were also favourable in the previous reporting period, and most of the improvements in the conservation status assessments were largely attributable to improved data and changes in methodology. More habitats and species are declining than improving.

These results are not surprising, as the majority of actions taken to implement the Directives have focused on the identification and establishment of the Natura 2000 network. The more practical management measures that will actually improve habitat conditions and meet the ecological requirements of species are yet to be fully put in place in many Natura 2000 sites, as well as in the wider environment. In addition, species and habitats often take a long time to respond to conservation measures, as indicated by a study of the response of birds to the implementation of the Birds Directive (see Donald et al, 2007, below). As noted in the 2015 State of Nature Report, conservation status assessments are based on a number of criteria in addition to current trends, such as historic range and population size and consideration of future prospects. With such complex multifaceted criteria, conservation status is likely to be an insensitive indicator of underlying change and progress towards achievement of the Nature Directives' objectives.

It is essential to consider the status of species and habitats in relation to the situation prior to the introduction of the Nature Directives, as many species and habitats had been in significant decline. For example, about 60% of wetlands have been lost in Greece since 1920, and in Spain, the Netherlands and Germany since 1950[152]. In the UK, almost all unimproved permanent pasture has been lost (UK NEA, 2011). Many respondents to the evidence gathering questionnaire noted that it is likely that status of EU protected habitats and species would be much worse in the absence of the Directives. They also referred to cases where actions that have been taken to implement the Nature Directives (such as through LIFE Programme projects) have arrested declines and led to species recoveries, such as in some wetland birds and large carnivores (Chapron et al, 2014; Deinet et al, 2013).

While it is extremely difficult to assess the overall impact of the Directives on mitigating ongoing threats, a number of studies have provided some evidence of added impacts. Most notably, a study by Donald et al (2007) compared bird trend data over two time-periods (1970-1990 and 1990-2000) from the EU-15 and elsewhere across Europe, to test five hypotheses based on their predicated impacts of the Birds Directive. The study had the properties of a highly replicated before-after-control impact (BACI) approach

[150] European Wild Bird Census Council http://www.ebcc.info/index.php?ID=588 accessed 17.02.16
[151] Butterfly Conservation Europe / Statistics Netherlands http://www.eea.europa.eu/data-and-maps/figures/grassland-butterflies-2014-population-index-1990/figure-2-4_sebi-assessment-report.eps accessed 17.02.16
[152] European Commission. 1995. Wise use and conservation of wetlands. COM(95) 189 final, 29.05.1995.

and was therefore able to provide robust statistically significant evidence of the following impacts:

- The population trajectories of Annex 1 species in the EU-15 improved after the implementation of the Directives in comparison to non-Annex 1 species, but not elsewhere in Europe.
- Improvements occurred in population trajectories of Annex 1 species relative to non-Annex 1 species in the EU-15 that were significantly greater than those elsewhere in Europe.
- Annex 1 species in the EU-15 were significantly more likely to have a more positive trend than the same group of species elsewhere in Europe, but there was no similar statistical difference for non-Annex 1 species.
- The positive impacts of Annex 1 listing were most apparent for the species that had been on Annex 1 for the longest.
- There was a positive correlation across the EU-15 between the population trend of species and the proportion of land designated as SPAs. Importantly, this pattern is apparent for both Annex 1 and non-Annex 1 species, although the impact was significantly stronger for Annex 1 species. For every 1% increase in the proportional area of SPA designated, the odds of a species being in a more positive population trend class increased by around 4% across all species and for non-Annex 1 species, and by approximately 7% for Annex 1 species.

In other words, this study provided strong evidence of the added value of the implementation of the Birds Directive (by comparing the situation before and outside the EU), the added value of conservation measures being taken in response to being listed on Annex 1, and the increased impacts from the time during which conservation measures are taken and the increased impacts of high levels of SPA designation for Annex 1 and non-Annex 1 species. Donald et al conclude that 'the data are therefore consistent with the hypothesis that the Birds Directive has brought demonstrable benefits to bird populations in the EU'. Although concerns were raised over the study's methods (Rodríguez-Muñoz et al, 2008), these criticisms were later refuted (Donald et al, 2008), and the results of the study are considered to be robust, and consequently are widely quoted in the scientific community and by the Commission, amongst others.

The Donald et al study was repeated in 2015 using a more up-to-date data set comprising both long-term (1980–2012) and short-term (2001–2012) trends in the populations of all breeding bird species occurring naturally in the EU (Sanderson et al, 2015). The study found that in both periods Annex 1 species had more positive trends than non-Annex 1 species, which was most apparent in countries that had been in the EU for the longest period of time. The positive impacts of the Birds Directive on Annex 1 species noted in the previous study appear to be consistent over time and across the expanded EU.

The study also examined the effects of climate change and other species traits on population trends, revealing no difference in trends between Annex 1 and non-Annex 1 species that are long-distance migrants. This suggests that the conservation benefits of the Birds Directive on such species were insufficient to compensate for pressures associated with their migration, such as changes in their African wintering grounds (Sanderson et al, 2006). The impacts of climate change on species' trends was also detected. However, the moderate changes in climate to-date do not appear to have had sufficiently strong impacts to negate the benefits of the Birds Directive. The authors conclude that 'the long- and short-term trends of birds in an expanded EU show strong evidence of an effect of the EU Birds Directive that is additional to, and often greater than, that of other known drivers of population change, such as climate change, life history strategy and migration strategy.'

Data on the trends of non-bird species in the EU are currently insufficient to enable as detailed an analysis, such as comparisons with countries outside the EU. However, the 2015 State of Nature Report compared the status and trends of Annex I habitats and Annex II species with their coverage in Natura 2000 sites. This found no statistically significant correlation between the proportion of habitat within Natura 2000 sites and their overall conservation status. Similarly, there was no correlation between the proportion of a species population within Natura 2000 sites and their overall conservation status. However, there was a statistically positive correlation between the level of coverage in Natura 2000 sites and the conservation status trend amongst species and habitats that had an unfavourable status. Given the a priori expectation that protected areas provide more suitable habitats for threatened species this implies that fewer habitats and species declines occur when they have higher levels of Natura 2000 coverage.

Another indication that the Directives are having added impacts is a comparison in the 2015 State of Nature Report of trends in bird species that have Species Action Plans (SAPs), and which therefore benefit from increased LIFE funding and other targeted measures, and those that do not. This shows that 50% of Annex 1 breeding birds with SAPs have long-term increasing trends, compared to 36% of Annex 1 breeding birds without SAPs.

Responses to the evidence gathering questionnaire

Although the assessment of this question primarily requires scientific evidence, the majority of respondents to the stakeholder questionnaire also considered both Directives to be progressing towards achieving their objectives (Table 5). Most respondents referred to their national monitoring reports or to the 2015 State of Nature Report as supporting evidence. Both nature conservation authorities and NGOs had similar responses, although NGOs had a slightly more negative view, with more responses judged to fall into the 'little progress category'.

Table 5 Percentage of evidence gathering questionnaire responses allocated to each category relating to progress towards the achievement of the overall objectives of the Directives

	Birds Directive		Habitats Directive	
	Nature Protection Authority	NGO	Nature Protection Authority	NGO
Number with a clear answer to the question	11	16	8	13
No significant progress	0%	0%	0%	0%
Little progress	0%	19%	13%	31%
Substantial progress	9%	19%	13%	8%
Objective achieved or largely achieved	0%	0%	0%	0%
Some progress but amount uncertain	91%	63%	75%	62%

Note: None of the responses from other public authorities and private enterprise / industry stakeholders expressed a clear view on the progress that has been made towards the establishment of the SPA and SCI networks.

Results from the online public consultation

The online public consultation questionnaire did not include a question directly asking the level of progress that had been achieved on the overall aims of the Directives. However, two questions related to the overall effectiveness of the Directives, which can be considered to provide some relevant insights on this issue. Firstly Q6 (in Part 1) asked whether the Directives have been effective in protecting nature (Table 6).

Table 6 Online public consultation questionnaire responses by stakeholder on whether the Directives been effective in protecting nature

	Not effective	Somewhat effective	Effective	Very effective	Don't know
Individual	<0.5%	5%	1%	93%	<0.5%
Business	13%	68%	10%	6%	2%
NGO	9%	31%	18%	41%	1%
Organisation or association (other than NGO)	10%	44%	32%	12%	2%
Government or public authority	3%	47%	33%	15%	1%
Academic/research institute	6%	25%	34%	34%	1%
Other	10%	55%	17%	15%	<0.5%
All respondents	**1%**	**6%**	**1%**	**92%**	
Total	**3,136**	**31,612**	**5,706**	**510,924**	**1,094**

The combined responses indicate that 92% felt that the Directives have been very effective. However, as discussed in section 4.3.1.4 this result is highly influenced by campaigns. The answers to Part 1 questions particularly reflect the responses of individuals to the Nature Alert! campaign, which is estimated to have contributed over 90% of the answers and who clearly support the (existence of the) Nature Directives. It is also clear that the answers varied considerably amongst the respondent groups, with 93% of individuals considering the Directives to have been very effective. The most frequent response amongst the NGO respondents (43%) was that they have been very effective, while 31% thought that they were only somewhat effective and 18% considered them to be effective. The majority of responses from businesses (68%), government or public authorities (47%), organisations or associations other than NGOs (44%) and others (55%) also considered the Directives to have been somewhat effective. There were broadly spread results from academic and research institute respondents.

Q17 in Part 2 also asked a similar question but, as shown in Table 7, answers conflicted with those for Q6. This probably reflects the influence of the Aktionsbündnis Forum Natur AFN campaign (which represents agriculture, forestry, hunting and fishing interests) as it is estimated to have contributed about 38% of the answers to Part 2 questions. The Nature Alert! campaign did not provide suggested answers for Part 2. Most individuals thought that the Directives were somewhat effective, so had a lower perception of effectiveness compared to the answers from individuals in Q6. By contrast, all other stakeholder groups provided responses that indicated a higher level of effectiveness than provided in Q6. The reasons for these discrepancies are uncertain but it is likely to be related to differences in the profiles of the groups answering the different parts of the questionnaire. It is therefore very difficult to draw conclusions from these results.

Table 7 Online public consultation questionnaire responses by stakeholder on effectiveness of the Directives to-date

AVERAGE (Birds and Habitats Directive)	Not at all effective	Not very effective	Somewhat effective	Very effective	Dont know
Individual	7%	10%	59%	23%	1%
Business	3%	8%	79%	9%	1%
NGO	4%	10%	33%	52%	1%
Government or public authority	2%	10%	56%	30%	2%
Academic/research institute	4%	6%	37%	53%	0%

Organisation or association (other than NGO)	6%	21%	50%	21%	2%
Other	3%	11%	65%	19%	2%
All respondents	6%	10%	59%	23%	1%
Total	1,033	1,728	9,981	3,885	189

In conclusion, the results of the Member States' monitoring reliably demonstrates that the impacts of the Nature Directives' measures to date are not yet sufficient to meet the overall aims of the Directives. However, there are clear cases where conservation measures have led to recoveries. Objective scientific evidence, particularly from birds, suggests that, overall, the Directives have a beneficial impact (especially where they have had the most time to take effect), and that the conservation status and trends of Annex I birds and species and habitats of Community interest would be worse in the absence of the Directives, although it is not currently possible to quantify the added impact of the Directives. There is also evidence of the benefits of Natura 2000. In contrast, there are particular concerns over status of habitats and species in the wider environment, such as some farmland birds.

5.1.3.2 Is progress in line with initial expectations?

Although it is possible to assess trends in habitats and species, and to a lesser extent the impact of the Directives, assessment of whether or not progress with the Directives is in line with expectations is particularly difficult because neither Directive set timetables for the achievement of their aims or most objectives. Although the term 'Natura 2000' might imply that there was an expectation that the network would be in place by 2000 there is no record that this was the case. Nor would it have been a realistic timetable for Austria, Finland and Sweden as they only joined the EU in 1995. Furthermore, the timetable would have to have be modified to take into account the accession of the 13 Member States since 2000. The only time-limits set within the Directives relate to the identification of SCIs and their designation as SACs. According to Article 4(3) of the Habitats Directive, lists of SCIs should be established within six years of the notification of the Directive. Member States are then obliged to designate SACs within six years of their adoption by the Commission as SCIs. This study found little indication that the Commission or Member States developed timetables for most objectives. The assessment of whether progress towards objectives meets expectations is, therefore, mainly based on the subjective views of this study's consultees.

Many Member States were slow to transpose the legislation, and this led to numerous infringement proceedings, as described in section 3.3. Many respondents to the evidence gathering questionnaire also considered there to be a lack of political will and ambition in the early stages of implementation of the Directives. This resulted in further infringements for inadequate or delayed designation of SPAs and proposals for SCIs.

As discussed further in section 5.3, factors that have limited progress on the designation of marine sites have included legal uncertainty about the need for offshore sites, and knowledge gaps relating to the distribution of marine habitats and species, which constrain the identification of the most appropriate sites for designation. However, as discussed in sections 3.2 and 8.4 the CJEU has clarified the need for offshore SCIs and several respondents to the evidence gathering questionnaire noted that several research programmes are underway to fill data gaps in the marine environment[153]. There has also been a recent increase in the rate of marine site proposals from Member States. Thus

[153] Case C-6/04 – Commission of the European Communities v. United Kingdom of Great Britain and Northern Ireland.' [2005] ECR I-09017

there does appear to be an impetus to complete the marine component of the Natura 2000 network.

The Commission does not appear to have publicly available data on whether or not each SCI has been designated as an SAC within the six-year time limit. However, as discussed above, the 2015 State of Nature Report provides an analysis of the proportion of SCIs that have been designated as SACs, which shows that designation of SACs has been slow, with many Member States failing to meet the six-year time limit.

There is a general consensus amongst the respondents to the evidence gathering questionnaire that the implementation of most measures has been slow, with many referring to the slow rates of transposition, SPOA and SCI identification and SAC designation. However, some consider that the delays and slow progress were inevitable, given the ambitions and complexity of what was intended, and therefore their expectations have been met. Others felt that faster progress could have been made if Member States had the political will to do so, and had provided more resources.

5.1.3.3 When will the main objectives be fully attained?

5.1.3.3.1 Evaluation of when the main objectives will be fully attained

This question attempts to establish the likely year or range of years during which the main objectives will be met, including the overall aims of the Directives and the key strategic objectives (i.e. including the establishment of the Natura 2000 network, and designation of SCIs and SACs and the adequate protection of species wherever they occur). However, it is very difficult to reliably predict when the main objectives of the Directives will be achieved, as no Member States have a comprehensive strategy and timetabled plan of action to achieve these. Very few respondents provided any clear indication of when they believed the main objectives of the Directives would be achieved. Some respondents referred to decades, but these appeared to be educated estimates rather than calculations based on an analysis of required actions and trends.

It is therefore not possible to reliably predict from the available information the likely date by which the main objectives of the Directives will be met, although progress is being made. This is because, as noted by many respondents to the evidence gathering questionnaire, there are a large number of factors constraining the implementation of measures and the overall maintenance and restoration of the Favourable Conservation Status of many EU habitats and species. Some of these factors relate to current implementation barriers, such as funding and the need for other EU policies to be more aligned with EU biodiversity polices (see section 5.3 and elsewhere in this report), which could be relatively easily addressed, feasibly within the next decade. However, ecological systems and many species populations take time to respond to conservation measures and therefore it is likely to take several decades for Favourable Conservation Status to be achieved for many habitats and species. Wider ongoing threats, such as nitrogen deposition and agricultural intensification and, in particular, climate change (see below) are much more difficult to tackle and reverse. As a result, the conservation objectives for some habitats and species may not be fully achieved in the foreseeable future.

5.1.4 Key findings

In relation to the evaluation question on progress towards the objectives the evidence indicates that yes, substantial progress has been made to introduce and apply the measures of the Directives, meaning that most of the operational objectives are in the process of implementation. Given the lack of precise targets in the Directives, it is difficult to judge whether progress is in line with expectations. According to the judgement criteria listed at the beginning of this section, and the evidence reviewed to answer this question, the following key findings have been drawn –

- Substantial progress has been made by all Member States on:
    - The identification and designation of SPAs and SCIs/SACs, i.e. the creation of the Natura 2000 network, which is nearly complete in the terrestrial environment (and has greatly increased the extent of protected areas in many Member States), with an increased impetus to complete the marine network.
    - Legal protection of Natura 2000 sites under Articles 6(3) and 6(4) of the Habitats Directive, although there are some concerns over the legal interpretation of Article 6(4), the adequacy of Member State compensatory measures and the Commission's limited enforcement of the provisions.
    - The protection of species, although actions need to be taken to address ongoing illegal hunting of migratory birds in the Mediterranean region, and the illegal killing of birds of prey and large carnivores in some Member States.
    - Scientific and applied research (e.g. the identification of appropriate sites for Natura designation) and surveillance / monitoring, although significant knowledge gaps remain (see section 6.8).
- Although there appears to be no clear justification, there has been inadequate implementation of the Habitats Directive requirement to designate SCIs as SPAs within six years.
- Moderate progress has been made in the development of conservation measures for Natura 2000 sites (e.g. through management plans and practical land management agreements with owners).
- Inadequate progress has been made with the establishment of financing mechanisms, both at an EU level and within Member States (see section 8.6).
- There is little evidence that Member States are taking additional measures to implement Articles 3 and 10 of the Habitats Directive, even though they appear to be necessary. Nevertheless, progress is being made towards the objective of ensuring that the Natura 2000 network is coherent, primarily through the increase in the quantity and quality of the sites in the network.
- The Directives have encouraged actions on reintroduction programmes and education and awareness activities, however there is insufficient information for a definitive assessment of progress.
- The impacts of the measures taken to-date are not yet sufficient to meet the overall aims of the Directives, as a substantial proportion of birds are threatened and/or declining, and a substantial proportion of habitats and non-bird species have an unfavourable conservation status.
- The limited progress towards improving the status of most European protected species and habitats needs to be considered in the context of the strong evidence of declines before the Directives came into force, the current stage of implementation and the time needed for ecosystems and species populations to respond to conservation measures. Recent assessments suggest that many

declines have been arrested, and many stakeholders consider that more widespread improvements in conservation status will occur when the Directives' measures are fully implemented.

- There is strong scientific evidence that the Directives have a beneficial impact over time on Annex I listed birds, particularly in countries with high proportions of SPA coverage. Annex I birds with Species Action Plans (SAPs) also tend to have more favourable trends. Habitats and non-bird species with an unfavourable conservation status are also more likely to show positive trends where a high proportion of their area or population occurs within Natura 2000 sites. The status and trends of Annex I birds, and species and habitats of Community interest, would therefore be worse in the absence of the Directives.
- Common bird species that have a large proportion of their populations within SPAs are more likely to have more favourable population trends. By contrast, a high proportion of species that are widely dispersed, particularly in agricultural habitats, are declining.
- Although no timetable for the implementation of the Directives was set out, most consultees consider progress to have been slower than expected. This appears to have mainly been due to delays and problems with transposition and resulting legal challenges, slow identification and designation of sites (especially in the marine environment), funding constraints and slow development of management plans (see section 5.3 for further discussion).
- No Member State authorities put forward timetables for the future implementation of the Directives, and therefore it is not possible to predict the likely date by which their general or more specific objectives will be met. A large number of factors constrain full implementation in the shorter-term (e.g. funding), and threats such as nitrogen deposition and climate change (see section 7.1 are likely to have long-term ongoing impacts that are very difficult to tackle and reverse.

5.2 S.2 - What is the contribution of the Directives towards ensuring biodiversity? In particular to what extent are they contributing to achieving the EU Biodiversity Strategy Objectives and Targets?

5.2.1 Interpretation and approach

The EU currently has the following headline biodiversity target (endorsed by the European Council on 26 March 2010[154]), 'Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.'

The 2020 headline target is supported by the EU Biodiversity Strategy which includes the six main targets and 20 supporting actions (set out in Figure 17)[155].The objectives of the Nature Directives ensure that they contribute to these EU biodiversity policies and targets to some extent, but mismatches may occur, given that both Directives predate the EU's latest biodiversity policy priorities by many years.

The analysis in relation to this question firstly focused on the judgement criterion of the contribution the Directives make to the conservation of biodiversity as a whole. This took into account the following key factors:

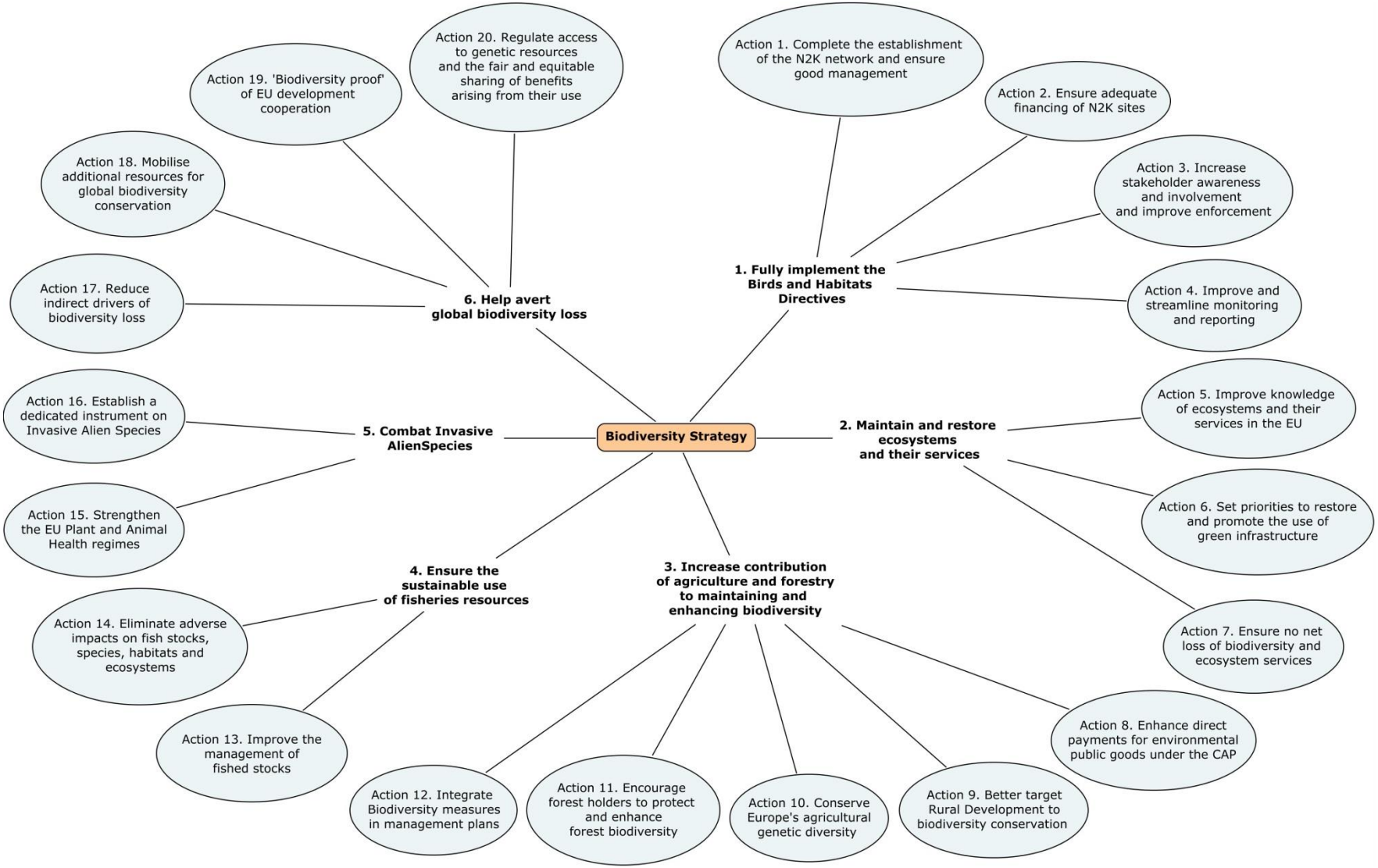
- The proportion of biodiversity that is directly targeted by the Directives (i.e. EU protected habitats and species).
- The proportion of other biodiversity that indirectly benefits from the measures for target species.

The second judgement criterion considered was the contribution that the Directives make to the achievement of each of the specific targets in the EU Biodiversity Strategy to 2020. Notwithstanding their steps to avert losses in the EU (which benefit some species that move beyond the EU), the Directives are of limited relevance to Target 6 and its specific supporting actions, which primarily relate to the EU's influence outside the EU. The Nature Directives' coherence with international and global commitments on nature and biodiversity are discussed under question C.10 (see section 8.9). Therefore, Biodiversity Strategy Target 6 is not considered here.

The other contributions that the Directives make to the overall objectives of the Biodiversity Strategy, beyond those included under Targets 1-6, are discussed under the analysis of question C.9 (see section 8.8).

[154] European Council Conclusions of 26 March 2010, http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/ec/113591.pdf
[155] COM(2011)244 Final *Our life insurance, our natural capital: an EU biodiversity strategy to 2020.*

Figure 17 EU Biodiversity Strategy to 2020 targets and actions



5.2.2 Main sources of evidence

The main sources of evidence used were:

- Scientific studies of the degree to which the Directives cover biodiversity at EU level and more local scales, through assessments of the species listed in the Annexes as well as those which have examined the adequacy of the Natura 2000 network for threatened species.
- Assessments of the threat status of species in the EU (i.e. IUCN Red List assessments)[156].
- Preliminary results from an ongoing Commission funded study on the wider biodiversity benefits of Natura 2000.
- The 2015 State of Nature Report (EEA, 2015a).
- The recently published Mid-term Review of the EU Biodiversity Strategy.
- Responses to the evidence gathering questionnaire, such as national examples of contributions to the targets, as well as highlighted gaps.
- Responses to the online public consultation, particularly Q16, Q25 and Q27.

5.2.3 Analysis of the question according to available evidence

5.2.3.1 Evaluation of evidence – the contribution the Directives make to the conservation of biodiversity as a whole

5.2.3.1.1 EU and national studies

Coverage of threatened species in the Annexes

The extent to which the annexes of the Nature Directives cover currently threatened species in the EU has been partially assessed in this study by comparing IUCN assessments of the threat status of species groups with the threat status of those species groups listed in the annexes to the Directives (i.e. all species on Habitats Directive Annex II, IV or V and Birds Directive Annex I). The results of the analysis are summarised below and presented in Annex 3.

As the Birds Directive provides protection for all native **bird** species in the EU, all 72 threatened species can be regarded as being protected to a certain extent, with 92% (67) of threatened species being trigger species for SPA designation. The Habitats Directive covers the majority of threatened vertebrate species, with just four threatened **mammals**, four threatened **reptiles** and eight threatened **amphibian** species not listed in the annexes[157][158][159]. Most of these non-Annex species occur in only one Member State,

[156] http://www.iucnredlist.org/about/overview accessed 17.02.16
[157] *Microtus bavaricus*, *Lepus castroviejoi, Lepus corsicanus, Crocidura zimmermanni.*
[158] *Galliota intermedia, Iberolacerta aurelioi, Podarcis carbonelli, Eremias arguta.* This analysis differs from the published European Red List of Reptiles, because, since publication, the threatened reptile species *Dinarolacerta mosorensis* has been added to Annexes II and IV for Croatia.
[159] *Alytes dickhilleni, Speleomantes sarrabusensis, Lyciasalamandra helverseni, Triturus pygmaeus, Rana cerigensis, Rana (Pelophylax) cretensis, Rana (Pelophylax) epeirotica, Rana pyrenaica.* The taxon status of *Rana pyrenaica* is recognised by the IUCN Red List but considered questionable by the Habitats Directive checklist.

and are either subject to ongoing taxonomic research on their status as species, or were only recently recognised as separate species. The knowledge and taxonomy of **freshwater fish** has developed substantially since the Annexes were first drafted, including the description of many new species. Despite this, of a total of 150 known threatened freshwater fish species, 75 are covered by the Annexes.

The Annexes to the Habitats Directive have a low coverage of threatened **invertebrates**, which is unsurprising, given that there are at least 100,000 described species in Europe, of which an unknown number are threatened. The Annexes cover 11 of 30 threatened butterfly species, 3 of 22 threatened dragonfly taxa, 6 of 56 threatened saproxylic beetle species, 7 of 273 threatened freshwater mollusc species, and 14 of 235 threatened terrestrial mollusc species.

The **arthropod taxonomic coverage** in the Annexes is partial, omitting entire species-rich groups, such as bees, wasps and ants (Hymenoptera) and flies (Diptera), and with only one species listed for spiders (Araneae) and sucking bugs (Hemiptera and Heteroptera) (Cardoso, 2012). Bees (Apidae, Andrenidae, Colletidae, Halictidae, Megachilidae, Melittidae) are the only arthropod group not covered by the Annexes that has been assessed for EU threat status, which found 9.2% of species threatened at the EU-27 level, while the status of 55.6% remains unknown (Nieto et al, 2014). The arthropod species lists in the Annexes have been assessed as biased towards Central and Northern European species, while European invertebrate diversity is richest in Southern Europe and the Mediterranean, particularly with respect to endemic species (Cardoso, 2012). The Annexes, for example, do not list any arthropods from the Macaronesian Islands which are particularly rich in endemic species.

The Habitats Directive protects 316 threatened **vascular plant** taxa, 293 of which require Natura 2000 site designation, while the threat status of another 139 taxa in the Annexes remains unknown. It is not possible to assess the overall coverage of threatened vascular plants in the EU, as the total number of plant taxa in the EU remains unknown but includes at least 12,000 species, of which only a fraction has been assessed. A draft list of threatened plant species in Europe lists around 9,600 species[160]. The Directive covers a relatively small number of **non-vascular plants** (mosses, liverworts, etc.) and omits fungi completely.

The analysis indicates that the Directives provide direct protection and other conservation measures for all birds and the large majority of vertebrate taxa that are threatened in the EU according to the latest IUCN assessment and criteria. These taxa comprise, in themselves, a significant proportion of all threatened taxa in the EU. In contrast, direct coverage of threatened plants and, in particular, invertebrates is low. Due to their diversity, these taxa comprise the majority of threatened species in the EU.

However, the IUCN Red Lists and the annexes of the Nature Directives have different purposes, with the latter tending to focus on species of regional or EU concern (see section 7.2 for further discussion). A large proportion of regional Red List species tend to be rare or highly localised, especially among plant and invertebrate taxa, making it, perhaps, more appropriate to address the conservation needs of such species through national actions, rather than through listing in EU wide instruments such as the Nature Directives. As discussed in the next section, many plant and invertebrate species will in any case receive indirect protection through the conservation of Annex I habitats and the habitats of those species that are listed in the annexes of the Directives.

Bombina pachypus has only recently been separated from *Bombina variegata* and is recognised as being covered by the Annexes, but is not yet listed as a separate taxon in the Habitats Directive checklist. *Calotriton arnoldi* is recognised as being covered by the Annexes as part of *Euproctus (Calotriton) asper,* but is not yet listed as a separate taxon in the Habitats Directive checklist.

[160] https://www.bgci.org/where-we-work/europe/ accessed 17.02.16

Coverage of non-protected species by the Natura 2000 network (the 'umbrella' effect)

Most Natura 2000 sites comprise natural or semi-natural habitats that are typically species-rich and support many specialised and rare species. The Habitats Directive requires the designation of Natura 2000 sites for 233 habitat types, which are defined in part by the occurrence of typical species (European Commission, 2013a). Therefore, in addition to including the EU protected habitats and species for which the site is designated, it is likely to hold many more species, some of which may be threatened but not listed on the annexes of the Directives (especially if they are plants or invertebrates according to the results discussed above). Box 6, illustrates such a case at a Natura 2000 site in Ireland.

Box 6 Examples of benefits of protected area designation for non-target species, i.e. the umbrella effect

At Termoncarragh Meadows SPA the key management is for breeding Corncrakes through restoration of flower-rich meadows. This has benefited not only Corncrakes but also wider wildlife, especially pollinators such as the Great Yellow Bumblebee (a species on the verge of extinction in Ireland) such that these meadows are now one of the primary sites for this endangered species, as well as the Red-shanked Carder Bee (a species in serious decline in Ireland and listed as Vulnerable) and the Large Carder Bee (a species now beginning to decline in Ireland). The Annagh Marsh reserve is managed sympathetically for breeding waders but benefits wider wildlife, especially pollinators, due to its floristic composition (machair grasslands). These again include the Great Yellow Bumblebee, Red-shanked Carder Bee and the Large Carder Bee. The area has also become very important for Northen Colletes (a small mining bee), as well as the click beetle *Selatosomus melancholicus* which in Ireland is only known in this area, the ground beetle *Carabus clatratus* (a species in serious decline in Ireland) and the Red Banded Sand Wasp, which is the only remaining population in Ireland. At BirdWatch Ireland's East Coast Nature Reserve, work carried out on restoring fen habitat has benefited the rare Desmoulin's Whorl Snail, and this is the only place on the east coast of Ireland where the snail is found.

Source: adapted from the response to the evidence gathering questionnaire from An Taisce (the National Trust for Ireland).

The Natura 2000 network is expected to provide protection for a large proportion of the EU's biodiversity beyond the species, taxa and habitats listed in the annexes, as a result of the spatial overlap in targeted species and non-targeted species, known as the 'umbrella' effect. This overlap has been critically tested using spatial biodiversity data in relation to coverage of threatened species in some taxa and all species in some groups. The detailed results of these studies are provided in Annex 3, with their conclusions summarised below.

A recent study commissioned by DG Environment (van der Sluis et al, 2016a) investigated the umbrella effect of the terrestrial Natura 2000 network and found that:[161]

- Butterfly species have a relatively high presence within Natura 2000, including threatened, non-threatened and not evaluated species, illustrating that most habitats for butterfly species are within the network.
- Vascular plant species that are identified as threatened on the EU or certain national Red Lists (and that are protected by international agreements, but excluding Annex II species) have more than 50% of their distribution within Natura 2000 sites, compared to 42% outside.
- European orchid species on the EU Red List or certain national Red Lists (but excluding Annex II species) have 60% of their distribution within Natura 2000 sites, compared to 40% outside. Birds that benefit most from Natura 2000 (showing consistently more than twice as great a relative % range within Natura 2000 compared to outside) are mainly associated with mountainous areas, wetlands and coastal habitats. Six bird species associated with farmland were found to be

[161] At the time of preparation of this report only the executive summary was available to the consultants.

underrepresented in the Natura 2000 network, including Lapwing, Oystercatcher, Skylark, Common Quail and Corncrake[162]. Although these species are not listed on Annex I of the Birds Directive, they are SPA trigger species in certain Member States, so some Natura 2000 sites are designated for these species.

The results of other studies that have assessed whether or not the Natura 2000 network adequately covers species considered to be threatened in the EU (i.e. those listed in IUCN assessments) suggest that the Natura 2000 network provides significant coverage for a large proportion of the threatened terrestrial vertebrates in Europe (Maiorano et al, 2015; Trochet and Schmeller, 2013). This is an expected result, as 79% of threatened birds, 55% of threatened mammals, 58% of threatened reptiles, 39% of threatened amphibians, and 36% of threatened fish species require the designation of Natura 2000 sites in at least some parts of the EU (see Annex 3 for details of calculations).

The coverage of threatened plants is more variable, from good in the UK (Jackson et al, 2009), Apulia, Italy (Perrino et al, 2013; Perrino et al, 2014; Perrino and Wagensommer, 2012; Perrino and Wagensommer, 2013a; Perrino and Wagensommer, 2013b; Wagensommer et al, 2013), Saxony, Germany (Schmiedel et al, 2013), and Andalucía, Spain (Mendoza-Fernández et al, 2010), to moderate in Ireland (Walsh et al, 2015). Plant micro-reserves (small areas of 5-20 ha) within Natura 2000 sites are effective for conserving populations of rare and threatened plant species in Spain (Valencia and Minorca), Slovenia (Karst Edge), Greece (Crete), and Cyprus (Kadis et al, 2013).

Even though no lichens are included in Annex II of the Habitats Directive, threatened lichens typical of old growth forest in moist climates are well represented in the Spanish Natura 2000 region (Martínez et al, 2006), although four of 18 lichens typical of dry habitats in a Mediterranean climate are poorly represented (Rubio-Salcedo et al, 2013).

The coverage of threatened invertebrate species is uncertain, as only two gap analysis studies have been carried out. These found that there is almost complete coverage of threatened butterfly species in Slovenia (Verovnik et al, 2011a). In contrast, endangered arthropods and molluscs are poorly covered by Natura 2000 in Spain (Hernández-Manrique et al, 2012).

Studies of some taxa have revealed that the extent to which Natura 2000 covers all species varies between species groups (see Annex 5.2.1 for details). The coverage of common birds is generally good and there is robust evidence that Natura 2000 shows a greater abundance of common bird species than areas outside the network (Pellissier et al, 2013; Pellissier et al, 2014), although there is evidence that this is not the case for farmland birds in Italy (Campedelli et al, 2010)..A study of amphibians and reptiles reported mixed coverage, with well-covered species mostly widespread taxa, while narrow-range species were under-represented (Abellán and Sánchez-Fernández, 2015).

Studies of the coverage of invertebrate species in Natura 2000 sites are very limited, but there is a high degree of concordance between distributional hotspots of 120 endemic water beetles and Natura 2000 sites in the Iberian Peninsula and the Balearic Islands, (Sánchez-Fernández et al, 2008). However, there was little coverage of saproxylic beetles in Italy (D'Amen et al, 2013).

A cross-taxa study (Ejrnaes et al, 2014) was carried out on the degree to which the terrestrial Natura 2000 network in Denmark provides protection for all threatened species (i.e. Red Listed) and biodiversity in general (based on a map of biodiversity hotspots). This found that the network covered the most internationally important sites, as well as providing protection for two-thirds of Denmark's threatened species. Coverage of threatened species was highest for those of salt meadows, mires, heaths, meadows and lakes (>80% of habitat area for threatened species) and lowest for those of streams (32%) and forests (39%). In addition, most of the overall biodiversity hotspots were included in the network, even though it only covers 8.4% of Denmark's land area.

[162] These species are not listed on Annex I but are SPA trigger species in certain Member States.

In the marine environment, the Nature Directives require Natura 2000 designation for a specific limited number of vulnerable marine species and habitats. They provide for a coherent coverage of seabirds, turtles and marine mammals in Natura 2000, but the protection of invertebrate species and marine habitats is less coherent, particularly with respect to the Mediterranean and Macaronesian seas (Evans et al, 2011). The Marine Protected Area (MPA) requirements of the MSFD were produced to fill the gaps, e.g. for offshore habitats and marine fish, by requiring the creation of coherent and representative networks of MPAs. There is a growing body of evidence of the umbrella effect of MPAs on non-protected species, especially fish stocks (see discussion below under Target 6).

5.2.3.1.2 Results of the evidence gathering questionnaire

Table 8 summarises the responses by stakeholders to question S.2 on the Directives' contribution to the overall target of halting the loss of biodiversity. The majority of stakeholders, especially amongst the NGOs, consider the Directives to make a major contribution to the EU's biodiversity target, or contribute to some extent that is not quantifiable from the response that was provided. Many respondents state that this is due to their focus on habitats and species that are threatened and/or of particular EU level importance, and their comprehensive legal framework of conservation measures. Several also refer to the indirect protection of species in Natura 2000 sites (i.e. the umbrella effect) and the pre-2016 studies described above.

Table 8 Summary of evidence gathering questionnaire responses to the contribution made by the Nature Directives to the EU's biodiversity target

Contribution of the Nature Directives to the EU's biodiversity target	Nature Protection Authority	Other public authority	NGO	Private Enterprise /Industry
Number with a clear answer to the question	20	4	29	7
No contribution	0%	0%	0%	0%
A small contribution	0%	5%	0%	0%
A substantial contribution	20%	0%	30%	0%
The major contribution	35%	5%	65%	15%
A contribution but the magnitude is uncertain from the response	45%	10%	50%	20%

Note. As the questionnaire did not include specific multiple answers for the respondents to choose from, the allocation of responses to the categories are based on judgement.

5.2.3.1.3 Results of the online public consultation

Q20 in Part II of the online public consultation asked 'how significant are the benefits associated with the Directives?' and the relevant responses are summarised in Table 9. More than 90% of respondents believed that the Directives provided some benefit, ranging from minor to major, for the conservation of wild birds, species and habitats. The most frequent response was that the benefits are minor (46-47%), with one-third (31-33%) believing them to be major and 14% allowing for moderate benefits. However, as discussed in the Methods chapter (Section 4.3.1.4), care must be taken in the interpretation of the online public consultation results, as they were significantly influenced by campaign responses. For example, a large proportion of Q20 responses were from a German campaign associated with hunting, forestry and agriculture stakeholders. This is

a possible explanation for the bi-modal distribution of responses, however, it is not possible to verify this, as a break-down of responses according to field or interest / user type was not provided in the online public questionnaire report.

Table 9 Summary of online public consultation responses to Q20 'How significant are the benefits associated with the Directives?'

Total responses = 16,815

	Insignificant benefits	Minor benefits	Moderate benefits	Major benefits	Don't know
Benefits to wild bird conservation	6%	46%	14%	33%	1%
Benefits to species conservation (other than birds)	7%	47%	14%	31%	1%
Benefits to habitat conservation	5%	46%	14%	33%	1%

5.2.3.1.4 Conclusion

On the basis of the scientific evidence reviewed above (much of which was referred to by respondents to the evidence gathering questionnaire) it can be concluded that the Directives contribute directly through the conservation of their target European protected habitats and species. These include all naturally occurring bird species under the Birds Directive, providing a comprehensive policy framework for this species group. The Habitats Directive complements the Birds Directive by addressing the conservation of other species, natural and semi-natural habitats. Although the Habitats Directive targets a selected group of threatened species and habitats, these include the majority of the most threatened mammals, reptiles, amphibians and fish in the EU. Few plants and invertebrates are directly targeted.

The Directives indirectly provide some protection for a much larger number of EU non-target species across all taxa. This is because most Natura 2000 sites are selected on habitat-based criteria, and qualifying habitats are generally species-rich and often hold rare species, with a lower degree of nature conservation interest in the wider environment. European protected species and habitats and Natura 2000 sites thus provide a so-called umbrella benefit. Studies of the umbrella effect are limited, but there is evidence of wide coverage of vertebrates and butterflies.

There are inevitably some deficiencies in the coverage of biodiversity. For example, studies of the distribution of some habitats and species in relation to the location of Natura 2000 sites have found that marine habitats and temporary freshwater habitats are under-represented in the Mediterranean region. However, the studies are too localised and taxa specific to draw any general conclusions on the adequacy of the Natura 2000 network either for the habitats and species in the Directives, or other threatened species.

5.2.3.2 Evaluation of evidence – the Directives' contribution to the specific targets of the EU Biodiversity Strategy

The EU Biodiversity Strategy recognises that the Nature Directives alone are not sufficient to deliver EU biodiversity policy. This is largely because the Directives have relatively little influence over land and sea 'use' practices (e.g. farming, forestry and fishing), or developments outside the Natura 2000 network, and have limited dedicated funding (i.e. the LIFE Programme).

The achievement of the EU's biodiversity target is, thus, highly dependent on additional support from other policies and legislation. The WFD, MSFD, and Emissions Ceilings Directive set other environmental objectives that contribute to those of the Biodiversity

Strategy and the Nature Directives, particularly on the regulation of pollution. The Common Agricultural Policy (CAP) also includes regulations that seek to protect biodiversity, and is the largest provider of management funds (see section 8.4 for discussion). Other EU funding instruments, including those related to Cohesion Policy and the European Maritime and Fisheries fund, also support biodiversity conservation to some extent (see section 6.2). All of these instruments, as well as the Nature Directives - and supporting Directives such as the Environmental Liability Directive - contribute to EU Biodiversity Strategy targets.

In assessing the effectiveness of the Nature Directives it has been important to understand the role of other interacting legislation in the delivery of the Strategy and, therefore, the specific roles the Birds and Habitats Directives should have.

5.2.3.2.1 The contribution of the Directives towards Target 1: to improve the status of EU protected species and habitats[163]

This Target focuses on EU protected habitats and species, with the Directives being the principle means by which the status of habitats and species will be improved. As the achievement of Favourable Conservation Status, and its equivalent under the Birds Directive, are the overalls aims of the nature legislation, the progress towards these goals is discussed in the context of the previous effectiveness question (see section 5.1).

The specific requirements under Target 1 are to achieve a significant and measurable improvement in the status of European protected habitats and species so that, 'by 2020, compared to current assessments: (i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50% more species assessments under the Birds Directive show a secure or improved status.' This Target is not included in the Directives, and progress towards it is briefly outlined below.

According to the Mid-term review of the Biodiversity Strategy to 2020 'much has been achieved in carrying out the actions under this Target', as summarised in Table 10[164]. These assessments are broadly consistent with the findings of this evaluation. The Member States' conservation status assessments, as analysed and summarised in the 2015 State of Nature Report, indicate that the number of species and habitats in secure/favourable conservation status has increased slightly since the 2010 baseline. However, the status of many habitats and species remains unfavourable, and some are deteriorating further. Consequently, the Mid-term review concludes that 'progress is being made towards the Target, but at an insufficient rate (increased efforts are needed to meet the target by this deadline)'. This is consistent with the findings discussed in question S.1 (see section 5.1).

Table 10 Summary of progress on the Biodiversity Strategy to 2020 actions supporting Target 1

Biodiversity Strategy Action	Progress	Discussion in this report
Action 1a) Member States and the Commission will ensure that the phase to establish Natura 2000, including in the marine	😐+	S.1

[163] To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments: (i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50% more species assessments under the Birds Directive show a secure or improved status.

[164] European Commission 2015 The mid-term review of the EU Biodiversity Strategy to 2020. COM(2015) 478 final, 02.10.2015.

Biodiversity Strategy Action	Progress	Discussion in this report
environment, is largely complete by 2012.		
Action 1b) Member States and the Commission will further integrate species and habitats protection and management requirements into key land and water use policies, both within and beyond Natura 2000 areas.	😐-	C.3,4,5,7
Action 1c) Member States will ensure that management plans or equivalent instruments which set out conservation and restoration measures are developed and implemented in a timely manner for all Natura 2000 sites.	😐-	S.1
Action 1d) The Commission, together with Member States, will establish by 2012 a process to promote the sharing of experience, good practice and cross-border collaboration on the management of Natura 2000, within the biogeographical frameworks set out in the Habitats Directive**.**	☺	S.3 & Y.5,8
Action 2) The Commission and Member States will provide the necessary funds and incentives for Natura 2000, including through EU funding instruments, under the next multiannual financial framework. The Commission will set out its views in 2011 on how Natura 2000 will be financed under the next multi-annual financial framework.	😐+	Y.2 & C.7
Action 3a) The Commission, together with Member States, will develop and launch a major communication campaign on Natura 2000 by 2013.	☺	R.4 & R.5
Action 3b) The Commission and Member States will improve cooperation with key sectors and continue to develop Guidance documents to improve their understanding of the requirements of EU nature legislation and its value in promoting economic development.	☺	C.3,4,5
Action 3c) The Commission and Member States will facilitate enforcement of the Nature Directives by providing specific training programmes on Natura 2000 for judges and public prosecutors, and by developing better compliance promotion capacities.	😐+	S.3
Action 4a) The Commission, together with Member States, will develop by 2012 a new EU bird reporting system, further develop the reporting system under Article 17 of the Habitats Directive and improve the flow, accessibility and relevance of Natura 2000 data.	☺	S.3 & Y.8
Action 4b) The Commission will create a dedicated ICT tool as part of the Biodiversity Information System for Europe to improve the availability and use of data by 2012.	😐+	S.3 & Y.5,8

Source: European Commission Mid-term review of the Biodiversity Strategy to 2020

5.2.3.2.2 The contribution of the Directives towards Target 2: the maintenance and restoration of ecosystems and their services[165]

As defined by the Commission, habitat restoration is 'Actively assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed, although natural regeneration may suffice in cases of low degradation. The objective should be the return of an ecosystem to its original community structure, natural complement of species and natural functions to ensure the continued provision of services in the long term.' Target 2 explicitly mentions the need to restore ecosystems for ecosystem services (as well as for intrinsic nature conservation values), as the multiple benefits of ecosystems must be maintained.

[165] By 2020, ecosystems and their services are maintained and enhanced by establishing Green infrastructure and restoring at least 15% of degraded ecosystems.

The EU's adoption of the relatively ambitious 15% target probably reflects the fact that there are already a number of existing policy instruments that require restoration, including the Nature Directives, WFD and MSFD, as well as funds that can directly or indirectly support the target, such as the LIFE programme, CAP (e.g. agri-environment climate measures), EMFF and Cohesion Policy funds, etc. Indeed, according to the Mid-term review of the Biodiversity Strategy, Member States have agreed that restoration actions under existing EU legislation should count towards the 15% target.

Although a range of measures may be needed to reach Target 2, the EU Biodiversity Strategy implies that the maintenance and development of Green infrastructure (under Action 6b) is the primary means of achieving it. In accordance with Action 6b, the Commission has now developed a Green Infrastructure Strategy[166]. According to the Strategy, Green infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features, designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, Green infrastructure is present in rural and urban settings. Thus, a very wide range of natural features can be considered to be Green infrastructure components that contribute to related goals. However, a study for the Commission, which informed the development of the Green Infrastructure Strategy, concluded that there is 'strong evidence that one of the most reliable and cost-effective ways of maintaining biodiversity and ensuring continued provision of ecosystem services is the conservation and enhancement of core areas (i.e. large and healthy ecosystems including for example sites designated as Natura 2000)'. This is further recognised in the Green Infrastructure Strategy, which notes that 'The work done over the last 25 years to establish and consolidate the [Natura 20000] network means that the backbone of the EU's Green Infrastructure is already in place. It is a reservoir of biodiversity that can be drawn upon to repopulate and revitalise degraded environments and catalyse the development of Green Infrastructure'. Similar views were expressed in a number of evidence gathering questionnaire responses.

The Directives also contribute to the maintenance and restoration of Green infrastructure outside the Natura 2000 network through the requirements of Article 3 of the Birds Directive and Article 10 of the Habitats Directive. However, as discussed under question S.1 (see section 5.1), there is little evidence that these measures have yet been implemented to any significant degree.

Another action listed in the Biodiversity Strategy under Target 2 is 6b, which states that the Commission will propose, by 2015, an initiative to ensure there is no net loss of ecosystems and their services. This policy primarily aims to support the maintenance component of the Target, by ensuring that unavoidable residual impacts are offset[167]. However, it can indirectly support the restoration of degraded ecosystems if an offset results in a net gain in biodiversity and associated ecosystem services (EFTEC and IEEP, 2010; Tucker et al, 2014). This can happen as a result of intentional or accidental over-compensation, such as by replacing more habitat than is lost, replacing lost habitats with habitats of higher ecological value and placing offsets in areas that can provide additional ecological functions (e.g. where they may enlarge, buffer or connect small and isolated habitat patches).

The Habitats Directive contains clear legal requirements to take measures to address residual negative impacts, equivalent to offsetting, that should contribute to achieving no net loss at the network level, as under Article 6(4) of the Habitats Directives, Member States 'shall take all compensatory measures necessary to ensure that the overall coher-

[166] COM(2013) 249 Final.

[167] Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure and ecosystem function and people's use and cultural values associated with biodiversity http://bbop.forest-trends.org/pages/biodiversity_offsets.

ence of the Natura 2000 Network is protected'. These provisions only apply to Natura 2000 sites, and compensatory measures should rarely be necessary, as impacts should be avoided in accordance with the mitigation hierarchy. Nevertheless, because these requirements apply to particularly important habitats, species and sites, the Article 6(4) measure has the potential to make a disproportionately high contribution to the aim of achieving no net loss of biodiversity in the EU. However, as discussed in section 5.1, despite the publication of Commission guidance on Article 6(4) (European Commission, 2007a), there are significant concerns over the degree to which compensatory measures actually offset impacts on the Natura 2000 network, with inappropriate compensatory objectives, poor quality measures and inadequate implementation all raised as issues (Tucker et al, 2014).

According to the Mid-term review of the Biodiversity Strategy, progress has been made on some of the policy and knowledge actions in support of Target 2 (i.e. the mapping and assessment of ecosystem services, development of a strategic framework for prioritising ecosystem restoration, the Green Infrastructure Strategy, a methodology for biodiversity proofing and the no net loss initiative). However, at the time of reporting, only two Member States had submitted Restoration Prioritisation Frameworks, and no estimate is provided of the amount of restoration that is expected to be delivered in response to Target 2. Notably, the Commission concludes that although there are few comprehensive restoration strategies at national and sub-national levels, some restoration is taking place – often in response to EU legislation such as the WFD, MSFD and the Nature Directives.

Given this situation, and the steps that are being taken to implement the Nature Directives - particularly the increasing steps to put management measures into place - it seems clear that the Directives are making a significant contribution to Target 2. However, the amount of restoration that is currently being carried out to meet the objectives of the Nature Directives (i.e. achieve Favourable Conservation Status of EU protected habitats and species), and the WFD and MSFD, remains unknown, making it impossible to quantify this contribution. Nor is the proportion of Annex I habitat area that has an unfavourable status and which therefore requires restoration, known. Nevertheless, it is evident that the potential contribution of restoration under the Habitats Directive alone is considerable, as 77% of Annex I habitat types have an unfavourable status (EEA, 2015a).

Half of the respondents to the evidence gathering questionnaire indicated that the Directives were contributing to Target 2 but it was not possible to quantify this contribution. 38% indicated that they thought they were making a substantial contribution and 8% considered they were making the major contribution to the target. Differing views were expressed in the online public consultation results in relation to Q16, which asked 'To what extent do the Directives help to meet the EU biodiversity Strategy objectives?' With respect to their contribution to 'Maintaining and restoring degraded ecosystems and their services' the most frequent response (57%) was that they make a small contribution, with 36% considering them to make a significant or very significant contribution. However, as noted above, it is difficult to interpret these results due to the influence of campaigns on the responses.

In conclusion, as the general objective of the Habitats Directive includes the requirement to restore species and habitats to Favourable Conservation Status, and many species and habitats are not in Favourable Conservation Status, then it is evident that the Directive has the potential to make a major contribution to Target 2 through ecosystem restoration and the associated enhancement of Green infrastructure. Similar contributions should arise from the Birds Directive, as there are similar implicit requirements to restore habitats in order to meet its objectives. However, there is insufficient information available to quantify the amount of ecosystem restoration currently occurring as a result of the implementation of the Directives, making measurement of their overall contribution to Target 2 impossible.

5.2.3.2.3 The contribution of the Directives towards Target 3a: agriculture[168]

Agriculture has a major influence on the EU's biodiversity, as a substantial number of semi-natural habitats listed in Annex I of the Habitats Directive, as well as many species that are covered by the Directives, are affected by agricultural management. Many EU protected habitats and species depend on low-intensity traditional farming systems, including those often referred to as high-nature-value (HNV) systems (Olmeda et al, 2014)[169]. Some species covered by the Nature Directives, such as farmland birds, occur in a wide range of farmland habitats. There is evidence of widespread historic declines in EU protected habitats and species, as indicated in the 2015 State of Nature report (EEA, 2015a), and as discussed in question R.1 (see section 7.1). These declines are primarily the result of agricultural improvements, intensification and specialisation, but also agricultural abandonment, primarily in some HNV areas (Poláková et al, 2011; Stoate et al, 2009).

In response to these biodiversity declines and other environmental impacts, nature conservation and other environmental objectives and measures have been progressively incorporated into the CAP since the 1990s. As discussed under question C.4/C.5 (Section 8.4), the CAP incorporates financial support and incentive measures, along with conditions on payments (e.g. cross-compliance), to achieve these aims. As discussed under Y.2 (see section 6.2), CAP Pillar 2 funded Rural Development Programme (RDP) measures are the most important for biodiversity, as they provide by far the largest source of funding for practical management measures in Natura 2000 sites, as well as for Habitats Directive Annex I habitats and the habitats of EU protected species in the wider environment. Of these measures, the agri-environment measure is the primary means used to incentivise farmers to adopt management practices that are beneficial to biodiversity, although other measures provide essential supporting funds (Keenleyside et al, 2012; Olmeda et al, 2014; Poláková et al, 2011).

In addition, the Natura 2000 compensation measure in Pillar 2 can provide compensation payments for management restrictions in Natura 2000 areas. However, this is not a mandatory measure and was implemented in 2007-2013 by only 13 of the 27 Member States (ENRD, 2014)[170].As discussed under question C.4/C.5 (see section 8.4), there appears to be a variety of reasons for its restricted use, including the preference by some Member States to concentrate resources on paying for voluntary commitments additional to legal requirements using the agri-environment-climate measure. In others, implementation is limited by the fact that some Member States still need to establish the required conservation objectives and plans (as discussed under question S.1 in section 5.1).

The RDP basic services and village renewal (previously rural heritage) measure can also provide funding for Natura 2000 site management, including visitor management and communication, management planning and associated studies and research, habitat creation and restoration projects, land purchase, and awareness-raising for conservation.

There are many examples of improvements in the status of EU protected habitats and species as a direct result of targeted agri-environment schemes (eg Batáry et al, 2015;

[168]By 2020, maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement in the conservation status of species and habitats that depend on, or are affected by, agriculture and in the provision of ecosystem services as compared to the EU2010 Baseline, thus contributing to enhanced sustainable management.

[169]HNV farmland can be defined as areas where agriculture is a major (usually) dominant land use and that supports, or is associated with, either a high species and habitat diversity, or the presence of species of European, and/or national, and/or regional conservation concern or both (Beaufoy and Cooper, 2008; Cooper et al, 2007; Oppermann et al, 2012). HNV farmland includes most of the farmland within Natura 2000 areas and other farmland with species and habitats listed in the annexes of the Nature Directives, but can include further areas characterised by a mosaic of low-intensity agriculture and natural and structural elements and/or a high proportion of semi-natural vegetation and/or other species of conservation concern.

[170] Hungary, Ireland, Bulgaria, Germany, Spain, Latvia, Estonia, Belgium, Lithuania, Czech Republic, Austria, Italy, Slovenia.

Broyer et al, 2014; MacDonald et al, 2012; Olmeda et al, 2014; Perkins et al, 2011; SEO, 2014; Whittingham, 2011). Evidence of the biodiversity benefits of other Pillar 2 measures is limited but, in Austria, 80% of the projects funded under the rural heritage measure contributed directly to conservation management for EU protected habitats and species inside and outside Natura 2000 in 2007-2013, covering 66,000 ha annually (Pinterits et al, 2014; Schwaiger et al, 2014). In Austrian Natura 2000 sites, the schemes were found to be the key to achieving the conservation objectives of habitat types (Suske et al, 2009).

It is therefore clear that the CAP's environmental measures have the potential to contribute greatly to the aims of the Nature Directives. The obligations under the Nature Directives, especially those relating to the need to establish conservation measures in accordance with Article 6(1) of the Habitats Directive, are an important policy driver for directing RDP funds. This is implied in the 2007-2013 Rural Development Regulation, where Member States/regions (the managing authorities) were required to align their RDPs with four axes, including axis 2 'improving the environment and the countryside'. As described in question C.4/C.5 (see section 8.4), there are now explicit requirements for the 2014-2020 period to (amongst other things) '*focus on restoring, preserving and enhancing biodiversity, including in Natura 2000 areas,…'* Managing authorities must take account of the specific needs of Natura 2000 areas, according to the PAF in their RDP needs assessment and in the overall design of their RDPs.

The Nature Directives can also contribute to Target 3 through the development of management plans for Natura 2000 sites, as they facilitate the development of agri-environment climate measure funded management agreements. Consequently they have been further encouraged through the development of Commission guidance on farming within Natura 2000 sites (European Commission, 2014c). As discussed in section 5.1 there has been limited progress on the development of management plans, but they have the potential to play a larger role in supporting Target 3a.

The contribution of the Nature Directives to the Biodiversity Strategy agriculture target is difficult to quantify. According to the Strategy, progress towards Target 3a will be measured by the amount of agricultural land under management agreements for biodiversity, combined with the assessment of improvements in agriculture-related EU protected habitats and species under Target 1, plus restoration of degraded agriculture-related ecosystems under Target 2. Exact figures for the agricultural area (Utilised Agricultural Area, UAA) covered by contract agreements under rural development measures during the 2007-2013 period will be available once the ex-post evaluations are completed.

As noted under question C.7 (see section 8.6), the indicators and targets included in RDPs are, in general, insufficient to allow proper monitoring and evaluation of results and outcomes in relation to Natura 2000 and/or the conservation status of EU protected habitats and species. As many agri-environment schemes in 2007-2013 addressed broad environmental issues, such as reducing soil erosion or nitrogen emissions, which generally have little or no direct benefits for biodiversity, it is not possible to quantify how much this measure contributed directly to the conservation of EU protected habitats and species. Inadequate targeting of agri-environment schemes to EU protected habitats and species and to Natura 2000 areas was raised in the responses from nature conservation authorities in Cyprus, Belgium (Wallonia), Ireland, the Netherlands (RLI, 2013), and Slovenia (see section 6.2 for examples). An assessment of a sample of 18 of the 2014-2020 RDPs across 16 Member States and regions indicates that there is also some cause for concern during the current funding period that there is insufficient targeting of measures to the needs of Natura 2000 areas and EU protected habitats and species (N2K Group, 2016)[171].

Despite the influence of the obligations under the Nature Directives, there is little evidence so far of an improvement in the conservation status of agriculture-related EU pro-

[171] Aragon (Spain), Bulgaria, Burgundy (France), Cyprus, England (UK), Estonia, Finland (mainland), Greece, Mecklenburg-Vorpommern (Germany), Poland, Portugal (mainland), Romania, Sardinia, Slovakia, Slovenia, Sweden

tected habitats and species (see section 5.1). Between the 2001-2006 and 2007-2013 reporting period, there has been no measurable improvement in the status of the majority of agriculture-related habitats and species covered by the Nature Directives, with the status of 39% deteriorating and only 4% showing an improvement (European Commission, 2015a). Further conservation action therefore seems to be a high priority in agricultural habitats. As discussed in section 8.6 the CAP has a key role to play in addressing this challenge and could contribute more towards achieving the aims of the Directives, especially if Pillar 2 funding was increased and Member States targeted and tailored their RDP measures towards the needs of EU protected habitats and species.

In conclusion, the Nature Directives contribute to the agriculture target of the Biodiversity Strategy, as they are an important policy driver for the CAP and land management measures for biodiversity in RDPs, which must take into account the needs of European protected habitats and species, both within Natura 2000 sites and in the wider environment. This has been facilitated through the development of PAFs by Member States. The development of management plans for Natura 2000 sites also helps to identify and prioritise appropriate agri-environment climate scheme measures and to set the baseline obligations for Natura 2000 compensation payments. It is difficult to quantify the contribution that the Directives are making to Target 3a, but there is evidence that it could be improved, as mismatches persist between RDPs and Natura 2000 priorities.

5.2.3.2.4 The contribution of the Directives towards Target 3b: forestry[172]

The Nature Directives cover a large proportion of EU biodiversity associated with forestry systems, including 73 bird species, over 240 non-bird species and 85 habitats associated with forests or woodland, while the Natura 2000 network covers 21% of the EU's forested land (European Commission, 2015b). This forest area has a wide range of owners and managers, and is managed with a broad variety of purposes, ranging from commercial timber production, to multifunctional forests managed for recreation and forest products, to forests maintained primarily for land protection functions (e.g. to control soil erosion, landslides, avalanches, flooding), or is currently unmanaged[173]. An increasing area of forest, mainly within protected areas, is under minimal or no-intervention management (e.g. to provide wilderness). To effectively manage Natura 2000 forest it is necessary to integrate Natura 2000 conservation objectives and measures into a diverse range of management structures, each with its own aims. In many Member States, the Natura 2000 network has substantially increased the proportion of privately owned forest under protection, which has increased the area of forest that is (potentially) subject to targeted management for biodiversity (European Commission, 2015b).

Progress against Target 3b will be measured by the extent to which forest management plans in line with Sustainable Forest Management (SFM) are in place for all publicly owned forests and other larger forests. It will also be measured by improvements in the conservation status of forest-dependent EU protected habitats and species under Target 1, as well as forest restoration under Target 2. In those Member States or regions where forest investment, protection and environmental management is funded through RDPs (EAFRD), forest management plans in line with SFM are now a requirement for funding above the threshold area size defined in the RDP, as prescribed by the regulation[174]. Forest Europe and a European Commission survey conclude that almost all publicly forested area and most private forest in the EU is already under a management plan or

[172] By 2020, Forest Management Plans or equivalent instruments, in line with Sustainable Forest Management (SFM), are in place for all forests that are publicly owned and for forest holdings above a certain size (to be defined by the Member States or regions and communicated in their RDPs) that receive funding under the EU Rural Development Policy so as to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 Baseline.
[173] http://ec.europa.eu/eurostat/statistics-explained/index.php/Forestry_statistics_in_detail accessed 17.02.16
[174] Regulation (EU) No 1305/2013 and Commission Implementing Regulation (EU) No 808/2014.

equivalent instrument, but there is currently no evaluation of the degree to which these comply with SFM (European Commission DG ENV, 2014; Forest Europe, 2015).

The currently agreed definition of SFM in the EU from Forest Europe makes references to biodiversity management (EFI, 2013). SFM and Natura 2000 are therefore mutually compatible, and the establishment of management plans for all Natura 2000 forest areas in the EU would substantially contribute to the achievement of Target 3b, covering 21% of the total forest area. This corresponds to the EU Forest Strategy, which calls on Member States to 'achieve a significant and measurable improvement in the conservation status of forest species and habitats by fully implementing EU nature legislation and ensuring that national forest plans contribute to the adequate management of the Natura 2000 network by 2020'[175]. The Multi-annual Implementation Plan defines the main channels for achieving this as the Natura 2000 Biogeographical Process, RDP and river basin management planning, and the development of Green infrastructure[176]. The Commission has produced guidance on Natura 2000 and forestry (European Commission, 2015b), which includes a recommendation to implement Natura 2000 forest management plans (though they are not obligatory).

SFM forest management plans do not necessarily achieve Natura 2000 objectives, unless they are specifically adapted to the Natura 2000 site objectives or to management requirements corresponding to the relevant Annex I forest habitat type(s) or the EU protected species present in the forest (European Commission, 2015b).

The management of Natura 2000 forest has raised many concerns for forest owners and managers, as well as nature conservation advocates (European Commission, 2015b), and experiences with management planning across the EU are very diverse. A study (Winkel et al, 2015) of 14 case study beech forests in six Member States, as well as stakeholder consultations, concluded that in many cases established management planning procedures tend to avoid conflicts between biodiversity and production by excluding explicit requirements to satisfy Natura 2000 conservation objectives. As a consequence, few or no changes were found in the management methods for Natura 2000 forests, except where local forest officers took the initiative.

Some examples of good practices in integrating Natura 2000 conservation objectives into forest management, as well as some more problematic experiences, cited by respondents to the evidence gathering questionnaire and/or from the literature, are described below.

- **National funding programme for forest management in Finland**: According to the Finland Nature Conservation Authorities, the Directives have boosted some successful national actions targeting improvement of certain habitat types (within and outside the Natura 2000 network), including through the Forest Biodiversity Programme METSO 2008–2025. This aims to halt the ongoing decline in the biodiversity of forest habitats and species, and establish stable favourable trends for endangered and declining species in Southern Finland's forest ecosystems. The scope of the programme covers the most important forested habitat types listed in Annex I of the Habitats Directive in Finland. During the period 2008–2014, about 64,000 ha of forests were placed under permanent protection in the METSO Programme (Rantala et al, 2014). In addition, over 48,000 ha of biodiversity-friendly actions in forest management in commercial forests have been carried out under the METSO programme to the end of 2014[177]. Most of the measures taken have improved the protection status of heathland forests with plenty of decaying wood, thus also positively affecting those species dependent on dead wood. However, studies indicate that the guidance provided to foresters from the government, aimed at protecting the nest sites of Flying Squirrel (*Pteromys*

[175] European Commission. 20/09/2013. A new EU Forest Strategy: for forests and the forest-based sector. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, European Commission, COM(2013) 659 final, 20/09/2013.
[176] European Commission. 2015. Multi-annual Implementation Plan of the new EU Forest Strategy. Commission Staff Working Document, European Commission, SWD(2015) 164 final, 2015d.
[177] http://www.ym.fi/fi-FI/Ajankohtaista/Tiedotteet/Vapaaehtoisessa_METSOohjelmassa_uusi_suo%2832847%29 accessed 17.02.16

volans), is ineffective at maintaining species presence and populations (Jokinen et al, 2015; Santangeli et al, 2013).

- **Private sector contribution to forest management for Annex I bird species in Sweden**: The timber company Bergvik Skog AB has signed a conservation agreement with the Swedish Forest Agency to maintain and create over 10,000 ha of deciduous forest to protect habitat for the endangered White-backed Woodpecker (*Dendrocopos leucotos*), as well as 200 other listed species (Bergvik Skog and Skogsstyrelsen, 2012).
- **Best practices in Boreal forest restoration**: Experience of good practices in boreal forest restoration and management in Finland have been published in a manual for Boreal forest managers (Similä et al, 2012). Restoration treatments for Annex I forest habitat types in Natura 2000 sites in Estonia have also been evaluated - restoration treatments were imposed on 30–60 year old conifer plantations, including gap creation with and without added deadwood, added deadwood without gaps, and gaps plus over-burning (Laarmann et al, 2013). The study demonstrated the benefits of the treatments for richness and abundance of understorey vegetation, mosses, lichens and beetles compared to control areas.
- **Natura 2000 forest management in Romania**: Current forestry guidelines and related legislation in Romania promote natural forest structures and seek to achieve sustainable yields, and are therefore considered by some to be compatible with the conservation requirements of the Natura 2000 network (Stancioiu et al, 2010). The study concludes that forest management is being implemented effectively at forest district administration level, but not at Natura 2000 site level, particularly not in Natura 2000 sites covering large areas and including diverse forms of ownership, and private forest owners are poorly informed about Natura 2000 (Stancioiu et al, 2010).
- **Inadequate management of open woodland habitats in the Czech Republic***:* In the Czech Republic, a study has concluded that the condition of open woodland habitats in five large forest Natura 2000 sites have been found to be worsening as a result of an intensification of forestry activities (leading to too little growth of new solitary trees and excessive infilling of open canopy areas for logging) (Miklín and Cížek, 2014). Although the current intensity of logging was reported as technically legal according to local laws, the authors consider it extremely unlikely to meet Natura 2000 conservation objectives.
- **Failure to implement Natura 2000 forest management in Germany***:* certain Natura 2000 beech forests examined in Germany do not offer better habitats for bats, compared to commercially used non-Natura forests (Zehetmair et al, 2015). The study concludes that the current management of the Natura 2000 beech forests is almost identical to that of non-Natura 2000 commercial forests, and thus, the Natura 2000 status has not led to an increase of bat-relevant habitat variables to date. Of the six Annex II bat species recorded, five are in unfavourable conservation status in the continental region of Germany[178].

In conclusion

The establishment of management plans for all Natura 2000 forest areas in the EU would substantially contribute to the achievement of Target 3b, covering 21% of the total forest area. SFM and Natura 2000 are mutually compatible frameworks as they both require action to manage and promote biodiversity. It should be noted, however, that SFM forest management plans do not necessarily achieve the objectives of the Nature Directives, unless they are specifically adapted to the Natura 2000 site objectives or to management requirements corresponding to the relevant Annex I forest habitat type(s) for EU protect-

178 http://bd.eionet.europa.eu/article17/reports2012/species/report/?period=3&group=Mammals&country=DE&region=CON accessed 17.02.16

ed species. The management of Natura 2000 forest has raised many concerns for forest owners and managers, as well as nature conservation advocates, and experiences with management planning across the EU vary, with some good and some poor examples.

5.2.3.2.5 The contribution of the Directives towards Target 4: fisheries[179]

In line with an international commitment by the EU in 1982 (UNCLOS) and the World Summit on Sustainable Development in 2002, the target on fisheries aims to achieve maximum sustainable yield (MSY) by 2015. It also aims to achieve Good Environmental Status by 2020, as required under the MSFD. The main actions relating to Target 4 include managing fish stocks (i.e. setting fishing quotas) in order to maintain and restore them to levels that can produce MSY, and increasing efforts to collect data on fish stocks to inform the implementation of MSY. In addition, actions such as the gradual elimination of discards to avoid harmful by-catch, and the implementation of the MSFD by inter alia providing adequate financial incentives for environmental measures, are central to the achievement of the target.

The management of European fish stocks is the remit of the Common Fisheries Policy (CFP), which therefore bears the strongest influence over the achievement of this target. However, evidence from the scientific literature, as summarised below, indicates that the Nature Directives can indirectly contribute to this Target 4.

As no major commercially harvested fish species are represented in the annexes of the Birds and Habitats Directives, such species are supported only indirectly, i.e. to the extent that they depend on habitats or species under protection. MPAs (also non-Natura 2000) are, by definition, spatial protection measures that primarily protect benthic ecosystems. Nevertheless, depending on the fishing restrictions imposed within the site, fish stocks may be supported both inside and outside site boundaries (Lester et al, 2009; Buxton et al, 2014).

Effects inside the site include individual specimens evading capture as primary or by-catch, thereby growing older and larger. This may contribute to the genetic resilience of the population, thanks to their greater reproductive potential and ability to produce larvae with better survival rate (Howarth et al, 2011; Birkeland and Dayton, 2005). International and European evidence show that sites that do not allow fishing (no-take) can generate significantly higher fish biomass, fish length, species richness and better fitness of high trophic species than multi-use and open access areas (e.g. Edgar et al, 2014; Guidetti et al, 2014; Fenberg et al, 2012).

Effects outside site boundaries include evidence from no-take sites resulting in spillover of adult fish into adjacent fishing grounds (Mateos-Molina et al, 2014; Vandeperre et al, 2011; Halpern et al, 2010; Follesa et al, 2009). By protecting the spawning grounds of targeted species, MPAs may also secure an undisturbed (form fishing) level of production of eggs and larvae that may, in turn, serve as recruitment for neighbouring stocks (Harrison et al, 2012). Evidence of recruitment effects is rare, as it is difficult to measure due to the temporal and spatial variability of larval survival and settlement (Goñi et al, 2010; Buxton et al, 2014). At spawning grounds, adult fish are easier to catch, making restricting fishing in these areas especially effective in reducing fish mortality (Pantzar, 2014).

Evidence of impacts of marine Natura 2000 sites on fish stocks – both inside and outside the protected areas – is scarce, possibly as a result of the relatively young age of many marine Natura 2000 sites. Evidence from Norway indicates that, for some species, significant positive effects on stocks are possible relatively soon after MPA designation (Moland et al, 2013). For others, it may take years, or even decades, to become successful breeders (Vandeperre et al, 2011). In addition, many marine Natura 2000 sites designat-

[179] Fisheries: Achieve Maximum Sustainable Yield (MSY) by 2015. Achieve a population age and size distribution indicative of a healthy stock through fisheries management with no significant adverse impacts on other stocks, species and ecosystems, in support of achieving Good Environmental Status by 2020, as required under the Marine Strategy Framework Directive.

ed by Member States still lack management plans (or equivalent measures) (European Commission, 2014), which means that not enough rules have been put in place to generate a significant impact (Pantzar, 2014). It is also important to acknowledge that species- and site-specific factors and external stressors will impact the effects of protection (Jameson et al, 2002; Edgar et al, 2014). Similarly, if surrounding fisheries are largely mismanaged, any spillover from an MPA will provide limited support to the fitness of fish stocks (Jessup and Power, 2011).

In conclusion, predicting the contribution of the network of marine Natura 2000 sites to Target 4 of the Biodiversity Strategy is both difficult and uncertain. There is clear evidence of no-take MPAs providing increased production of fish larvae and fitness of adult specimen, but very little evidence of multi-use sites supporting fish stocks. This suggests that marine Natura 2000 sites - which are almost exclusively multi-use areas - would need to impose strong restrictions on extractive activities in order to benefit fish stocks. Further research in this regard is necessary as the particular extraction methods and the way by which these methods are applied play a significant role for the recovery of the extraction site, including its suitability for fisheries (European Commission. 2010a)[180]. Above all, conservation results are dependent on authorities' ability to effectively manage and enforce the protection of existing sites.

5.2.3.2.6 The contribution of the Directives towards Target 5: invasive alien species[181]

The detrimental impacts that invasive alien species (IAS) can have on native habitats and species has been known for many years, and measures to combat such threats are explicitly included in the Nature Directives. Under Article 11 of the Birds Directive, 'Member States shall see that any introduction of species of bird which do not occur naturally in the wild state in the European territory of the Member States does not prejudice the local flora and fauna. In this connection they shall consult the Commission.' Under Article 22(b) of the Habitats Directive, Members States shall 'ensure that the deliberate introduction into the wild of any species which is not native to their territory is regulated so as not to prejudice natural habitats within their natural range or the wild native fauna and flora and, if they consider it necessary, prohibit such introduction. The results of the assessment undertaken shall be forwarded to the committee for information.'

Although these specific obligations primarily relate to controlling the introduction of IAS (rather than controlling or eliminating established species) it is important to note that Member States must take all measures necessary to achieve the aims of the Directives (i.e. Favourable Conservation Status). Therefore, as IAS are a relatively frequent pressure affecting some species and habitats (especially amphibians, wetlands and rivers) then, in practice, Member States have taken wider actions than those required by Articles 11 and 22 in order to control and, if necessary, eradicate IAS.

Many of the actions that have been taken to address IAS impacts in EU protected habitats and species within Natura 2000 sites and in the wider environment have been funded by the LIFE programme. According to a recent review, it has co-financed more than 260 IAS projects across Europe since 1992, investing a total of some EUR 70m in the problem (European Commission, 2014d). The number of LIFE projects in each Member State since 2002 that have focused on IAS are listed in Table 11, together with some examples. Not all of these will have focused on EU protected habitats and species, and therefore it is not possible to quantify the Nature Directives' overall impact, but it is clear that they have made a considerable contribution to the EU Biodiversity Strategy's target on IAS. Furthermore, IAS are a thematic priority for the LIFE programme 2014-2020.

[180] European Commission, *Non-energy mineral extraction and Natura 2000. EC Guidance on non-energy extractive activities in accordance with Natura 2000 requirements,* 2010, p. 85
[181] By 2020, IAS and their pathways are identified and prioritised, priority species are controlled or eradicated, and pathways are managed to prevent the introduction and establishment of new IAS.

Table 11 Selected LIFE projects since 2002 that have focused on IAS

Member State	IAS projects since 1992[*1]	Example[*2]		
		Project number	Title	IAS addressed
Austria	3	LIFE04 NAT/AT/000003	Alluvial forests and slope forests of the Upper Danube Valley	*Exotic conifers*
Belgium	23	LIFE13 NAT/BE/000074	Cross-border heath restoration, inland dunes and pools, integrated invasive plant management	*Prunus serotina; Quercus rubra; Rhododendron ponticum*
Cyprus	4	LIFE04 NAT/CY/000013	Conservation management in Natura 2000 sites of Cyprus	*Acacia spp.*
Czech Republic	4	LIFE11 NAT/CZ/000490	Grasslands and streams restoration in SCI Krkonoše: Future of Nardus grasslands*, Dwarf gentian* and Bullhead	*Lupinus polyphyllos*
Denmark	8	LIFE11 NAT/DK/000893	LIFE LAESOE - restoration of birdlife and natural habitats at Laesoe	*Rosa rugosa; Spartina anglica; Pinus mugo; Pinus contorta; Picea sitchensis; Prunus serotina*
Estonia	2	LIFE08 NAT/EE/000257	Securing *Leucorrhinia pectoralis* and *Pelobates fuscus* in the northern distribution area in Estonia and Denmark	*Carassius auratus gibelio, C. Auratus, Elodea*
Finland	6	LIFE07 NAT/FIN/000151	Inventories and planning for the marine Natura 2000 network in Finland	*Dreissena polymorpha; Mytilopsis leucophaeata*
France	14	LIFE98 NAT/F/005250	Maritime archipelagos and islets of Brittany	*Neovison; Rats*
Germany	14	LIFE07 NAT/D/000233	Restoration of habitats in the Federsee bog (ReHa Federseemoor)	*Solidago canadensis, Impatiens glandulifera, Helianthus tuberosus, Cornus alba*
Greece	5	LIFE10 NAT/GR/000637	Management of the SPA site of Andros Island to achieve a Favourable Conservation Status for its priority species	*Rats*
Hungary	12	LIFE06 NAT/H/000098	Conservation of Euro-siberian steppic woods and Pannonic sand steppes in 'Nagykörösi pusztai	*Prunus serotina, Robinia pseudoacacia*

Member State	IAS projects since 1992[*1]	Example[*2]		
		Project number	Title	IAS addressed
			tölgyesek' pSCI	
Ireland	7	LIFE09 NAT/IE/000220	Restoration of the Upper River Blackwater SAC for the Freshwater Pearl Mussel, Atlantic Salmon, European Otter and Kingfisher	*Impatiens glandulifera*
Italy	45	LIFE08 NAT/IT/000352	Conservation and recovery of *Austropotamobius pallipes* in Italian Natura 2000 Sites	*Procambarus clarkii (Red Swamp Crayfish / Louisiana Crayfish)*
Latvia	1	LIFE06 NAT/LV/000196	The improvement of habitats management in Natura 2000 site - Vestiena	*Heracleum mantegazzianum*
Luxembourg	1	LIFE11 NAT/LU/000857	Restoration of Unio crassus rivers in the Luxembourgish Ardennes	*Muskrat Ondatra zibethicus*
Malta	1	LIFE12 NAT/MT/000182	Soil stabilisation measures to protect Annex I habitats in Buskett-Girgenti Natura 2000 site	*Ailanthus altissima, Vitis sp., Agave sp. Ricinus communis*
The Netherlands	6	LIFE09 NAT/NL/000418	Realisation of Natura 2000 targets for calcareous white, grey dunes and dune slacks in three Dutch dune sites	*Prunus serotina, Cotoneaster sp, Mahonia aquifolium*
Poland	8	LIFE12 NAT/PL/000034	Nature mosaics - protection of species and habitats in Natura 2000 site 'Pieniny'	*Fallopia japonica,Fallopia sachalinensis*
Portugal	14	LIFE97 NAT/P/004082	Measures for the management and conservation of the Laurissilva Forest of Madeira (code 45.62*)	*Hedychium gardnerianum*
Romania	5	LIFE10 NAT/RO/000740	Improving the conservation status for the priority species and habitats in the Iron Gates wetlands	*Invasive weeds (Eichhornia crassipes, Azolla filiculoides, Nymphoides peltata), invasive trees (Robinia pseudoaccacia, Rhus hirta, Ailanthus altissima), Neovison vison*
Slovakia	4	LIFE10 NAT/SK/000083	Restoration of endemic pannonic salt marshes and sand dunes in Southern Slovakia	*Solidago sp. , Ailanthus altissima, Robinia pseudoacacia, Gleditchia triacan-*

Member State	IAS projects since 1992[*1]	Example[*2]		
		Project number	Title	IAS addressed
				thos, Padus serotina, Celtis occidentalis
Spain	45	LIFE09 NAT/ES/000534	Conservation of Posidonia oceanica meadows in Andalusian Mediterranean Sea	*Caulerpa racemosa, Lophocladia lallemandii*
Sweden	4	LIFE09 NAT/SE/000344	Management of the invasive Raccoon Dog *(Nyctereutes procyonoides)* in the North-European countries	*Nyctereutes procyonoides (Raccoon)*
UK	19	LIFE05 NAT/UK/000142	Eradication of Ruddy Ducks in the UK to protect the Whiteheaded Duck	*Ruddy Duck*

Source: Selected projects from the brochure on LIFE projects on IAS (European Commission, 2014b)
1 as selected in the LIFE brochure, so the total number of projects may be higher. 2 Further details of each project can be obtained from the LIFE project database at: http://ec.europa.eu/environment/life/project/Projects/index.cfm

In conclusion, the Directives' legislation requires Member States to prevent the introduction of alien species and, indirectly, to address their impacts on European Protected Species and Habitats. This has resulted in numerous actions being taken to control and eradicate IAS that are clearly making a significant contribution to Target 5, although it is not possible to quantify this precisely.

5.2.4 Key findings

Many stakeholders stated that the Nature Directives make a major contribution to the EU's biodiversity target, and are widely regarded as the cornerstone of the EU's biodiversity policy.

- Firstly, the Directives contribute directly through the conservation of their target European protected habitats and species. These include all naturally occurring bird species under the Birds Directive, providing a comprehensive policy framework for this species group. The Habitats Directive complements the Birds Directive by addressing the conservation of other species, natural and semi-natural habitats. Although the Habitats Directive targets a selected group of threatened species and habitats, these include the majority of the most threatened mammals, reptiles, amphibians and fish in the EU. Few plants and invertebrates are directly targeted.
- Secondly, the Directives indirectly provide some protection for a much larger number of EU non-target species across all taxa. This is because most Natura 2000 sites are selected on habitat-based criteria, and qualifying habitats are generally species-rich and often hold rare species. European protected species and habitats and Natura 2000 sites thus provide a so-called umbrella benefit. Studies of the umbrella effect are limited, but there is evidence of wide coverage of vertebrates and butterflies. There is robust evidence that Natura 2000 contains a greater abundance of common bird species than areas outside the network.
- There are inevitably some deficiencies in the coverage of biodiversity. For example, studies of the distribution of some habitats and species in relation to the

location of Natura 2000 sites have found that marine habitats and temporary freshwater habitats are under-represented in the Mediterranean region. However, the studies are too localised and taxa specific to draw any general conclusions on the adequacy of the Natura 2000 network for either the habitats and species in the Directives, or other threatened species.

- The measures contained within the Directives contribute towards the achievement of the specific targets of the EU's Biodiversity Strategy, as follows:
    - Target 2: Maintenance and restoration of degraded ecosystems, with more use of Green infrastructure. As per the aims of the Directives, the maintenance and restoration of habitats and species populations are closely aligned with the objectives of Target 2. It is therefore evident that, if fully implemented, the Directives have the potential to make major contributions to Target 2 through ecosystem restoration and the associated enhancement of green infrastructure. However, there is insufficient information available to quantify the amount of ecosystem restoration occurring as result of the implementation of the Directives, and accurately measure their overall contribution to Target 2.
    - Target 3: Increase the contribution of agriculture and forestry to biodiversity conservation.
    - 3a: agriculture: The Nature Directives contribute to the agriculture target of the Bio-diversity Strategy as they are important policy drivers for the CAP, and RDPs must take into account the needs of European protected habitats and species, both within Natura 2000 sites and in the wider environment. This has been facilitated through the development of PAFs by Member States. The development of management plans for Natura 2000 sites also helps to identify and prioritise appropriate agri-environment climate scheme measures, as well as linking to forest management plans. However, mismatches persist between RDPs and Natura 2000 priorities and funding requirements, and progress on Natura 2000 site management planning has been slow in most Member States.
    - 3b: forestry: The establishment of Natura 2000 forest management plans for all sites would contribute to the achievement of Target 3b in up to one-fifth of EU forest. SFM and Natura 2000 are mutually compatible frameworks, as both require action to manage and promote biodiversity. However, SFM forest management plans often need to be adapted to the requirements of EU protected forest habitats and species, in order to ensure management appropriate to achieving a measurable increase in conservation status.
    - Target 4: Sustainable management of fish stocks. Although the Directives do not directly influence the management of fish stocks, they are likely to provide indirect benefits, primarily through the designation of marine Natura 2000 sites, which can restrict some fishing activities thereby helping depleted fish stocks to recover. But this effect is very difficult to quantify, as most Natura 2000 sites are multi-use sites, rather than strict no-take zones.
    - Target 5: The control and eradication of IAS. The Directives require measures to be taken to prevent the introduction of alien species and, indirectly, to address their impacts on European Protected Species, and have therefore resulted in actions being taken well in excess of the Biodiversity Strategy requirements and the recently developed Invasive Alien Species Regulation. While it is not possible to quantify the overall impact of these actions, they have made a significant contribution to Target 5.

5.3 S.3 - Which main factors (e.g. implementation by Member States, action by stakeholders) have contributed to or stood in the way of achieving the Directive's objectives?

5.3.1 Interpretation and approach

This analysis sought to identify the main factors that have affected the Directives' ability to achieve their specific and operational objectives, as well as their general objectives, as set out in section 2.3. The factors were identified in relation to the following two judgement criteria:

- The main EU level factors that have contributed to or stood in the way of implementation.
- The main Member State level factors that have contributed to or stood in the way of implementation

However, as the factors considered in these two criteria are often interrelated (e.g. EU and Member State funding), the criteria have been assessed together where appropriate. The analysis considered whether the overall approaches and specific objectives are consistent with the Directives' general aims, while primarily focusing on factors affecting the implementation of their measures (e.g. transposition, approaches towards protecting sites and species, funding, promotion to the public and monitoring). The analysis also distinguished between previously influential factors and ongoing issues.

Many of the most influential factors identified are already well known and are covered in more detail under other questions, including Y.2 (see section 6.2), Y.8 (see section 6.8) and in relation to policy conflicts discussed in several coherence questions (see section 8). Therefore, while this section aims to identify all of the important influential factors that contributed to, or hindered, the Directives' achievements, it concentrates on those not described in detail elsewhere. Numerous factors could be described and further-subdivided, with a significant degree of interaction and overlapping. As a broad evaluation study the factors identified and discussed here should not be regarded as an exhaustive list or definitive categorisation, but as a list of the main relevant factors in this context.

5.3.2 Main sources of evidence

A number of EU level studies have examined the implementation of the Directives, identifying some of the factors that have contributed to, or hindered, their achievements. Two of those studies are of particular relevance and their results are assessed in detail. The ETC-BD carried out a literature review of the ecological effectiveness of the Natura 2000 network (Naumann et al, 2011). This review identified 142 publications in the scientific and grey literature via web-based bibliographic search using 'Natura 2000' and similar terms as selection criteria. Of these, 128 priority references were analysed in light of two key questions. Firstly, what do Natura 2000 sites deliver in terms of ecological effectiveness? This is closely linked to the examination of the coverage of biodiversity by the Natura 2000 network, and is dealt with in question S.2 (see section 5.2). Secondly, the study investigated those factors exerting the most influence on levels of effectiveness, the results of which are described below. The second key study evaluated the cross-scale functioning of Natura 2000 through a targeted survey of European conservation scientists using a structured questionnaire (Kati et al, 2015). According to the authors, this is the

first poll-based attempt to evaluate the implementation of Natura 2000. However, it did not evaluate other aspects of the Nature Directives, such as species protection measures.

A large number of studies have also been carried out on the implementation of the Directives in one or more Member States and these provide insights into the factors that have had an impact on their achievements to-date. These have, for example, covered Greece (Apostolopoulou and Pantis, 2009), the Netherlands and Italy (Ferranti et al, 2010), Poland (Grodzinska-Jurczak et al, 2012; Grodzinska-Jurczak and Cent, 2011), Romania (Ioja et al, 2010) and the UK (Ledoux et al, 2000; Morris, 2011). Many of these studies were considered in the ETC-BD literature review and/or referred to as supporting evidence by the respondents to the evidence gathering questionnaire. These studies are not, therefore, described systematically in a dedicated section below, but are instead referred to when relevant to the discussion.

The evidence gathering questionnaire responses provided a large amount of relevant information, often including clear explicit lists of the main influencing factors. This information, together with the evidence from the previous EU level studies, was used to develop a simple list of key factors that could be used to quantify the stakeholder responses (i.e. to count the number of respondents that clearly identified each of the key factors as a contributing or hindering factor). The list also forms the structure of the discussion of the key influencing factors. The sections below describes the basis of the identification of the key factors, before discussing each in turn, drawing on the EU level, national and stakeholder evidence.

5.3.3 Analysis of the question according to available evidence

5.3.3.1 Evidence from EU and national studies

A number of EU studies have examined the factors influencing the effectiveness of the Directives. However, the Directives do not operate in isolation, and the biodiversity that they seek to conserve is also influenced by other EU and national level measures, such as those being taken to achieve the EU's broader biodiversity targets (see section 5.3). Before analysing the Directives specifically, therefore, it is useful to provide wider context by summarising the reasons why the EU failed to meet its 2010 headline target of halting the loss of biodiversity. An analysis carried out for the Commission concluded that although the Biodiversity Action Plan set out to address the key pressures and drivers, it was hampered by insufficient integration of biodiversity requirements into other sectoral policies, incomplete implementation of existing legislation (including the Nature Directives among others, such as the WFD and the National Emission Ceilings Directive 2001/81/EC (NECD)), policy gaps, insufficient funding, limited awareness of biodiversity, inadequacy of the policy framework and governance, as well as inadequate administrative capacity, skills and knowledge gaps (MRAG et al, 2010)[182].

The ETC-BD literature review of the ecological effectiveness of Natura 2000 (Naumann et al, 2011) identifies similar problems to those affecting the implementation of the 2010 Biodiversity Action Plan. The analysis firstly considered ecological effectiveness in terms of the Natura 2000 network's coverage of the geospatial and ecological requirements of target habitats and species through a review of gap analysis studies. The review included an assessment of the factors influencing the ecological effectiveness of the network. The factors highlighted in the review were[183]:

[182] European Commission 2006. Halting the loss of biodiversity by 2010 - and beyond. Sustaining ecosystem services for human well-being. Communication from the Commission, COM(2006)216 final, 22.5.2006.
[183] I.e. those set out in bold type in the original document, with minor amendments and additional explanatory text added in parentheses.

- Policy planning and implementation process
    - A lack of reliable data and insufficient communication of scientific data to policy makers and planners.
    - Insufficient participation of the public and of landowners.
    - A lack of support from local authorities.
    - Conflicts between economic interests and conservation goals (exacerbated by the lack of access to scientific data, meaning that other concerns assume a more dominant role in planning and implementation).
    - Inadequate personnel, administrative and financial resources.
    - Weaknesses of policy design and low policy coherence across sectors (particularly with respect to agriculture and forestry, e.g. ineffective targeting of agri-environment support payments to high nature value (HNV) farming).
- Selection of Natura 2000 sites at Member State level
    - Unclear conservation goals of the Natura 2000 network, politically motivated site selection, and low prioritisation of conservation objectives and socio-economic considerations, compared to economic objectives.
    - A bias towards areas away from human activity.
    - Incoherent planning and approach to site selection.
    - Insufficient functional connectivity and spatial connectedness.
- Management of Natura 2000 sites
    - The central role of low intensity agriculture and forestry activities in preserving valuable habitats is not reflected in Member State policy priorities and site management.
    - Lack of adequate conservation data hinders effective management.
    - Insufficient implementation of management plans across Member States, as well as species and habitats.
    - Insufficient stakeholder participation and community engagement in management processes.
    - Incoherent management approaches between marine and terrestrial Natura 2000 sites.

A paper by Hochkirk et al (2013a), not referred to in the ETC-BD review, identifies some problems from the perspective of 14 German university academics. While, overall, they conclude that 'conceptually, the Habitats Directive meets all requirements to become a successful conservation act', they identify four major problems with the implementation of the Directive. Firstly, they state that a more regular adaptation of the annexes is required to ensure that the Directives focus on priorities according to the most up-to-date and comprehensive scientific knowledge (an issue discussed in detail in section 7.2 of this report). Secondly, they suggest that strategic conservation plans are required for highly threatened species and that adaptive management plans should be prepared locally for all sites, stating that this is not the case at present. Thirdly, there is a need to improve on-the-ground monitoring as it lacks standardisation across countries, taxon-specific standards and coherent training of monitoring staff. Lastly, they note that a substantial increase in funds is necessary to address the implementation problems, and to increase awareness and educational actions in order to reach societal consensus on the necessity for conservation.

Another recent EU level review, not included in the ETC-BD paper, by Crofts (2014) focused on the Natura 2000 network from a practitioner's perspective. It draws on the author's experience of contributing to its implementation whilst Chief Executive of Scottish Natural Heritage, and his involvement in wider IUCN work on protected areas. Overall, his assessment is positive, as he considers the Directives and Natura 2000 measures to be far-sighted and effective. A number of strengths and weakness are identified, as summarised in Table 12. In relation to the overall aims, strategic objectives and approach of the Directives, he locates the Natura 2000 network's strengths in its ambitious, strategic and regional approach within a biogeographical framework that has clear objectives (Favourable Conservation Status) for habitats as well as species. This goes beyond the maintenance of the status quo, instead moving towards the restoration of degraded habitats and depleted species populations.

Table 12 Summary of strengths and weakness of Natura 2000, according to Crofts (2014)

Strengths	Weaknesses
Regional, transnational approach	Not all Member States took it as seriously as they should have
Based on biogeographic regions	More rational approach to selection of regions
Common classification of species and habitats	Unsystematic in subdivision of habitats
Site and area focus	Lacks focus on connectivity
Encouragement to restore habitats	Selection of priority habitats unsystematic
Encouragement to re-introduce lost species	Little activity in most Member States
Expert scientific basis	Difficult for non-expert to engage
Top-down approach ensures action	Top-down approach causes conflict with key stakeholders
Environmental NGOs played positive role in implementation	Opponents feel that environmental NGOs have too much influence
Natura 2000 is key EU biodiversity mechanism	Other EU policies in opposition perverse incentives
Responsibility on Member State to resource	No additional resources provided

In some respects, the author believes that the Directives do not adhere to good practice, as he considers the Natura 2000 approach to be rather narrow, being site-focused with inadequate consideration of the wider environment, instead of modelling itself on ecological network concepts that involve buffer areas and corridors, such as that followed in the Netherlands (Government of the Netherlands, 2014). However, his criticism is not supported by evidence of the conservation benefits of ecological networks and, in fact, conflicts with recent views that it is more important to conserve large core areas of good quality habitat than to focus on joining them up with corridors, a practice for which there is little evidence of effectiveness (Hodgson et al, 2009; Hodgson et al, 2011; Kettunen et al, 2007; Van Der Windt and Swart, 2008). Furthermore, most of the species that necessitate Natura 2000 designations have specific habitat requirements and other ecological needs, making it unlikely that typical corridors could provide the habitats required to greatly facilitate their movements. Crofts also believes that the requirement to designate sites for particular habits and species leads to static conservation objectives that do not recognise ecological changes. While this problem is also noted by others, for example with respect to coastal change in the UK (Ledoux et al, 2000), there is, in fact, evidence to show that change in features can be accommodated, such as in response to climate change (see section 7.1).

Two other major weaknesses are identified by Crofts and supported by other evidence and stakeholder opinions. Firstly, although the top-down approach used to establish Natura 2000 facilitates systematic and well-coordinated actions, it has also led to some problems, in particular, where key stakeholders were not sufficiently consulted. Although some Member States took steps to consult with those affected by the proposals for Natura 2000, this consultation was limited, as the Directives require sites to be selected solely on scientific criteria. This created conflicts, especially where designations were on private

land, leading, in some cases, to protesters hiring their own nature conservation experts to challenge the case put forward for site designation (e.g. certain sites in Scotland). Crofts considers the involvement of stakeholders to be beneficial, as it forces a more rigorous approach by the nature authorities.

Secondly, citing Phillips (Phillips, 2003) and Lockwood et al (2006), Crofts states that the best protected area systems have 'a financial assessment of the costs of all stages in the process, appropriate financial mechanisms and resource allocations to ensure that the necessary tasks can be undertaken both in the short and the long term, and the revision of those policies and programmes whose continuation would impact on or hinder the implementation of the protected areas measures'. In terms of these requirements Natura 2000 does not perform well, as funding is inadequate and policies have not been aligned to support biodiversity objectives.

Kati et al (2015) identified the main factors affecting the implementation of Natura 2000, using a targeted questionnaire-based survey of conservation scientists in Europe in 2009. 242 responses to the questionnaire were received from 24 Member States. Although this comprises a substantial sample, the respondents were from a primarily academic background (40% employed in a university or research institute), with almost half having less than four years involvement in Natura 2000 implementation, and one-quarter having two years or less. The results of the study should be read in light of the academic nature of the group, along with the limited range of experience.

The questionnaires asked respondents to score 30 elements of Natura 2000 implementation according to a 5-point Likert scale of satisfaction (e.g. 1= not at all; 5= very much). The results were then subjected to a comprehensive statistical analysis to identify the factors that most influenced the respondents' satisfaction levels with Natura 2000 implementation[184].

The analysis revealed that the conservation scientists had a moderate level of overall satisfaction with the implementation of Natura 2000 (mean score 3.07). Table 13 shows that seven main factors affected the quality of implementation (in decreasing order of influence). Respondents considered the increase of biological knowledge gathered for target species and habitats to be the greatest strength of the Natura 2000 designation process. Other strengths included the contribution of NGOs, the adequacy of the network design in terms of its area and representativeness, and the adequacy of the legal framework.

Table 13 Average item scores and factor scores from a survey of conservation professionals in Europe about Natura 2000

No.	Factor	Questionnaire item	Item score*	Factor score
1	Network design	Natura 2000 well represents the areas that should be protected	3.80	3.69
2		The area of Natura 2000 network covers a sufficient proportion of the national territory	3.57	
3	External sources	Involvement of NGOs yields desired positive effects for Natura 2000 implementation	3.81	3.34
4		EU Life+ funds for Natura 2000 are adequately used for nature conservation	3.46	
5		EU rural development funds targeted at Natura 2000 implementation are adequately used for nature conservation	3.18	
6		Spatial and urban planning of the municipalities properly integrates Natura 2000 sites	2.90	
7	Legal frame	Natura 2000 provides an efficient EU legal frame to enhance nature conservation	3.64	3.27

[184] Including analysis of the reliability of the questionnaire, and cluster analysis and tree modelling of the responses, which are not fully reported here.

No.	Factor	Questionnaire item	Item score*	Factor score
8		There is an adequate national legislation for the implementation of Natura 2000	3.36	
9		Natura 2000 is effective in halting or mitigating big projects (regional scale) with great negative impact on biodiversity	3.28	
10		Natura 2000 is effective in halting or mitigating small projects and activities (local scale) with small negative impact on biodiversity	3.17	
11		Natura 2000 is effective in halting illegal activities' negative impact on biodiversity	2.95	
12	Scientific input	Natura 2000 contributes to increasing our knowledge on species inventories and habitat typology	3.87	3.9
13		Competent conservation scientists are available	3.54	
14		The personnel charged with the management of Natura 2000 sites in situ is competent	3.40	
15		Scientific studies for Natura 2000 sites management are adequate	2.91	
16		The current management practices implemented in Natura 2000 sites are adequate for the conservation of biodiversity	2.86	
17		There is a sufficient number of conservation scientists involved in Natura 2000 decision-making processes	2.64	
18		Sufficient personnel are employed for the management of Natura 2000 sites in situ	2.41	
19	Procedural frame	EU cross-compliance regulation for nature conservation is adequately implemented in Natura 2000 sites	3.25	3.07
20		The measures proposed by the EIA studies for projects and activities planned inside Natura 2000 are adequately implemented	3.21	
21		The EIA studies for projects and activities planned inside Natura 2000 are adequate	3.21	
22		The monitoring schemes for Natura 2000 sites are adequate	2.96	
23		The monitoring schemes in Natura 2000 sites are well implemented	2.74	
24	Social input	Citizens would support a substantial increase of national funds for nature conservation	3.07	0.69
25		Natura 2000 contributes to the sustainable development of local communities	2.98	
26		Local people have a positive attitude toward Natura 2000	2.50	
27		Local people have the knowledge for well-informed decisions with regard to nature conservation in Natura 2000 sites	2.41	
28	National or local policy	An efficient national mechanism has been established for Natura 2000 administration	2.89	2.5
29		Natura 2000 success is among the priorities of your national government	2.43	
30		Natura 2000 success is among the priorities of local governments	2.17	

Source: Kati et al, (2014).
Note: * average of a 5-point Likert scale of satisfaction (e.g. 1= not at all; 5= very much).

Weaknesses were the lack of political will from local and national governments, the negative attitude of local stakeholders, as well as their lack of background knowledge (which prevented well-informed policy decisions), and the understaffing of Natura 2000 management authorities. The lack of public and stakeholder awareness and social input through stakeholder participation was viewed as one of the main weaknesses. The authors note that 'farmers, foresters, landowners, and local residents in most EU member states envisage Natura 2000 as a hindrance to development and often oppose Natura 2000 implementation, according to the gravity of economic interests at stake' [citing

Young et al 2005; Keulartz 2009; Apostolopoulou and Pantis 2009; Grodzinska-Jurczak & Cent 2011]. The respondents also considered that EIA procedures need to be improved. In this regard it is assumed that the paper is referring to Appropriate Assessments (AAs) (in accordance with Article 6(3)), rather than EIAs carried out in accordance with the EIA Directive. As such this observation is consistent with some stakeholder views discussed below. The impact of this factor, however, may have lessened in recent years, as a more recent review of AAs carried out for the Commission found that standards had improved (Sundseth and Roth, 2013).

5.3.3.2 Responses to the evidence gathering questionnaire

The literature reviewed above provides reasonably consistent views and, together with an examination of the evidence gathering questionnaire responses, it was possible to identify a number of recurring themes and specific factors that have significantly influenced the implementation of the Directives. Inevitably, their interactions are complex, making it difficult to separate them entirely and avoid duplication of issues. Table 14 lists the key issues and is aligned with the list of factors that were included in the online public consultation for this study. The key factors are described in more detail below. Some respondents indicated that funding levels were influential factors but did not provide further details of the impacts of funding constraints, in which case the key factor was noted as a general funding issue. Similarly, in some cases only general stakeholder consultation issues were identified.

Table 14 indicates the percentage of respondents that were judged to have included the listed factor, as well as whether they considered it to support or hinder the implementation of the Directives. In some cases, the responses indicted that the factors had mixed impacts on implementation. For example, initial increases in funding or knowledge helped to initiate actions, but now higher levels of funding are required. The information provided did not allow for a reliable and systematic quantification of the impact of each factor on implementation.

Although the results are broadly consistent with other sources of evidence, such as those described above, the most influential factors vary between Member States and regions, according to their context and their position along the Directives implementation pathway. Thus, for example, factors affecting the designation of terrestrial Natura 2000 sites are still relevant to the newer Member States, while older Member States may be more concerned with factors affecting the establishment of management measures within sites.

Table 14 Factors affecting implementation of the Directives in the Member States

Based on an analysis of 88 clear and relevant responses to question S.3 in the evidence gathering questionnaire (from 23 nature authorities, 10 other authorities, 35 NGOs and 20 from private enterprise / industry)

Factor – the level of:	Listed by	Supporting	Hindering	Mixed
General funding availability	58%	8%	50%	0%
• Funding availability for management measures (including compensation / incentives for land owners)	38%	3%	30%	5%
• Funding availability for nature / environment authorities and their capacity	27%	0%	27%	0%
General stakeholder awareness & cooperation - GENERAL	51%	9%	31%	11%
• Awareness and collaboration - landowners, farmers and foresters	28%	5%	19%	5%
• Awareness and cooperation - nature	16%	15%	1%	0%

Factor – the level of:	Listed by	Supporting	Hindering	Mixed
conservation / science organisations				
• Awareness and cooperation - businesses	14%	9%	5%	0%
• Awareness and cooperation - hunters and anglers	6%	1%	3%	1%
Available knowledge	48%	3%	40%	5%
Court rulings and Commission guidance	36%	16%	11%	9%
Coherence with other EU policies and funds	30%	2%	26%	1%
Political ambitions and support	28%	1%	27%	0%
Objective setting and management planning processes	24%	6%	17%	1%
Governance, including cooperation across government departments, and between national, regional and local levels	23%	1%	20%	1%
Enforcement of legislation and penalties	17%	1%	16%	0%
Authorities' expertise and experience (e.g. AAs and permitting)	11%	2%	9%	0%
Integration with spatial planning, SEA and EIA	9%	3%	6%	0%

Other factors mentioned by five or fewer respondents were: the systematic biogeographical process; the designation of industrial areas within Natura 2000 sites; pre-accession funding for projects; access to justice, uncertainty of national and EU legal interactions; the current focus on jobs and growth and low awareness of value of Natura 2000 sites; the history of nature conservation in the Member State; measures in some Member States going beyond the Nature Directives' requirements ('gold-plating'); overly strict application of procedures at the expense of the overall aims of the Directives; limitations on use of adaptive management approaches to dealing with potential pressures; differences in Member States' approaches (e.g. relating to interpretation of habitat definitions, fisheries, hunting); land ownership sensitivities and registration problems; the complexity of procedures for landowners to apply for management contracts; limitations of the voluntary approach to site management; lack of incentives for private investment in biodiversity; lower taxation for Natura 2000 landowners; transboundary cooperation; and public support for the environment.

5.3.3.3 Results from the online public consultation

Under Q18, respondents were asked to identify which of the 15 factors listed contributed to making the Directives a success. Table 15 provides a summary of the results, but care should be taken in the interpretation of the combined responses due to the influence of response campaigns by different stakeholder groups (see section 4.3.1.4). Of the 15 factors listed, eight were considered by the majority (46-49%) to have made no contribution to the success of the Directives. Four of the factors, namely, effective enforcement, effective national coordination, guidance and best practice implementation, and international cooperation to protect species and habitats, were considered by the majority (49-52%) to have made a minor contribution. Public awareness and support (57%) and nature conservation being integrated into other policies (55%) were considered by the majority to have a moderate contribution to the success of the Directives. None of the 15 aspects were considered by the majority to have made a major contribution to the success of the Directives.

Adequate scientific knowledge was the factor that stood out as being most frequently believed to have a major contribution. Combining the moderate or major contribution responses suggest that the top three factors, with a combined percentage of over 40%,

were public awareness and support, nature conservation integration with other policies, and scientific knowledge.

Table 15 Summary of respondents' responses to Question 18 of the public consultation on factors that have contributed to the Directives' successes

The results are based on 16,815 responses (see section 4.3.1.4 for a breakdown of respondent types)

	No contribution	Minor contribution	Moderate contribution	Major contribution	Don't know
The Directives are clearly worded	47%	10%	18%	21%	4%
Effective enforcement	7%	51%	19%	20%	3%
Effective EU level coordination	47%	12%	15%	19%	6%
Effective national coordination	7%	52%	17%	20%	3%
Effective regional coordination	46%	14%	20%	17%	3%
Effective local coordination	48%	16%	15%	18%	3%
Guidance & best practice on implementation	7%	51%	17%	21%	4%
Sufficient scientific knowledge of species & habitats	46%	9%	15%	28%	2%
Dedicated funding	46%	13%	14%	23%	5%
Appropriate human resources	47%	13%	18%	17%	5%
Stakeholder involvement	49%	10%	15%	22%	4%
Public awareness & support	9%	15%	57%	17%	2%
Nature conservation is well integrated into other policies	10%	15%	55%	18%	3%
Appropriate management of protected areas	46%	12%	17%	23%	2%
International cooperation to protect species & habitats	7%	49%	24%	14%	6%

5.3.3.4 Description of key factors and case examples

The key factors identified in the review above are further described below, together with supporting examples from the evidence gathering questionnaires and literature. More detailed case examples are also provided for issues of particular importance that are not discussed in more detail elsewhere in this report. Political will and court cases are described first, as these were particularly relevant to the initial stages of the implementation of the Directives, for example, the interpretation of the Directives during their transposition, and Member State ambitions relating to the extent of the Natura 2000 network, etc.

The other key factors relate to the ongoing implementation of the Directives and are given in order of importance, according to the number of evidence gathering questionnaire responses that raised them as a core issue.

5.3.3.5 Political ambitions and support for the (objectives of/actions required by the) Nature Directives

The need for political support of the Nature Directives from the elected representatives of national and regional government bodies was mentioned by 28% of respondents to the evidence gathering questionnaire (Table 14). Of these, only the Spanish Ministry of Agriculture, Food and Environment, stated a positive impact as a result of strong political support, citing the country's creation of the largest Natura 2000 network in the EU and its decision to develop management plans for all sites in the network as evidence. However, the response from the Spanish NGO did not support this view. All other respondents considered political support to have been weak, constraining the implementation of the Directives in their country. This seemed to primarily relate to the transposition of the Directives, which was slow in many countries, and the ambitions regarding the number of sites and extent of the Natura 2000 network. However, as discussed under question Y.2 (see section 6.2) political decisions have also influenced the allocation and targeting of EU funds.

The majority of respondents to the evidence gathering questionnaire considering political support to be inadequate and therefore a constraint, were NGOs (49% of NGO responses). Four Member State authorities also indicated that past political support had been weak (Greece, Italy, Luxembourg and Poland). The European Landowners Organisation and the Bulgarian Tourist Board also felt that weak political support had constrained implementation of the Directives. Several respondents suggested that the underlying reasons for concern stemmed from perceptions of the Directives' potential to create burdens and slow down or prevent economic developments, combined with limited awareness of the social and economic benefits of biodiversity and ecosystems services (particularly true at the time). In the Netherlands, politicians considered their established protected area networks to be sufficient to meet the requirements of the Directives (Ferranti et al, 2010). Kati et al (Kati et al, 2015) also found that respondents to their questionnaire from 24 Member States gave a low agreement score in relation to the statement that 'Natura 2000 success is amongst the priorities of your national government' (Table 13). They also found that political support was lower at local levels, as they gave their lowest score to the statement on the prioritisation of Natura 2000 by local governments.

Direct evidence of weak political support, and its impacts and causes, was not provided by any respondents, but many referred to European Court of Justice (CJEU) cases resulting from slow or incomplete designation / classification of SPAs / SCIs, leading to Member States having to increase the designation of SPAs and SACs. For example, cases related to the inadequate implementation of the Birds Directive were brought against Ireland (117/00), Italy (C-334/89), the Netherlands (C-3/96), France (C-166/97, C-96/98, 202/01), Finland (C-240/00), Spain (C-235/04 and 378/01), Greece (C-334/04), and Bulgaria (4850/2008). Similar cases relating to the failure to propose complete lists of SCIs, pursuant to Article 4 of the Habitats Directive, were brought against Ireland (C-67/99), Germany (C-71/99) and France (C-220/99).

5.3.3.6 Court rulings and Commission guidance

Uncertainty regarding the implications of some legislative provisions also led to some delays in the transpositions of the Directives (see section 3.3), which in turn led to infringement procedures and legal cases that further delayed transposition and implementation. However, over time, the case law has clarified interpretation of the legislation and confirmed whether or not Member States have acted lawfully in transposing and implementing their provisions.

Evidence of the effects of infringement cases on implementation primarily comes from the responses to the evidence gathering questionnaire. 38% of respondents indicated that the CJEU and national court cases, as well as the development of Guidance docu-

ments, affected the implementation of the Directives (Table 14). However, views on whether the court cases contributed to or hindered implementation vary. Some respondents who listed this as a key influencing factor stated that the court cases supported implementation (16%). But a significant number considered court cases to hinder progress (11%) and or to have mixed effects (9%), such as initially delaying progress but stimulating more effective actions in the long-run. Several respondents noted that the Commission had played a key role in identifying and dealing with legal issues during initial discussions with Member States, which led to infringement procedures, where necessary. This process of learning and clarification has been supported by the production of Commission Guidance documents (developed increasingly in consultation with stakeholders; see list and discussion in relation to question Y.8 (see section 6.8).

Case examples from responses to the evidence gathering questionnaire where implementation is believed to have been affected by CJEU court cases included:

- Austria: inadequate and incomplete implementation, and variation amongst the Federal regions resulted in many problems with the transposition and implementation of the Directives, resulting in 39 Commission infringement proceedings. (Source: World Wide Fund for Nature (WWF) Austria.)
- Bulgaria: The Commission supported the implementation of the Directives by providing guidance on correct implementation of the Directives in particular cases, both during the accession process (Kresna case), and after accession, mainly through infringement procedures (e.g. Kaliakra case on the inadequate protection of Kaliakra IBA – 4260/2008), regular visits to Bulgaria, and meetings with desk officers in Brussels[185]. (Source: Bulgarian Society for the Protection of Birds.)
- Luxembourg: For a long time Luxembourg failed to transpose the Directives into national law, as the relevance of the Directives was underestimated and there were uncertainties relating to the correct legal interpretation of some articles (e.g. Habitats Directive Article 6(3)). EU guidance facilitated implementation. Governments, stakeholders and business have familiarised themselves with the procedures and the processes of the Directives and their overall functioning. The Directives have become increasingly effective over time as different authorities have become familiar with the Directives. (Source: Ministry of sustainable development.)
- Hungary: the two examples below show that legal cases can have different effects, the first significantly accelerated implementation of the Nature Directives, while the second significantly hindered implementation (Source: MME/BirdLife Hungary).
    - The Sajólád Wood was added to the Natura 2000 network in 2004, but was severely depleted due to illegal logging and clear-cutting of several wood sections by the forest management authorities. The hardwood alluvial forest hosted many protected species, including the endangered Scarce Fritillary butterfly. The European Commission sent Hungary a final written warning in May 2010 stating that the Hungary Forest Act provides insufficient legal protection for Natura 2000 woodlands that are not also classified as protected areas under national law186. In response, the Hungarian forest management authorities incorporated Natura 2000 measures into its 10-year forestry management plans.
    - Audi case – The Hungarian authorities approved an economic development with an Audi car manufacturing plant under Article 6(4) of the Habitats

[185] T-PVS/Files(2004)20E / 21 October 2004: https://wcd.coe.int/com.instranet.InstraServlet?command=com.instranet.CmdBlobGet&InstranetImage=1326919&SecMode=1&DocId=1450548&Usage=2 ; T-PVS/Files(2006)15E / 27 September 2006: https://wcd.coe.int/com.instranet.InstraServlet?command=com.instranet.CmdBlobGet&InstranetImage=1326460&SecMode=1&DocId=1436748&Usage=2

[186] http://europa.eu/rapid/press-release_IP-10-526_en.htm?locale=en

Directive, involving the declassification of 279 ha of an SCI187. As several priority habitat types were significantly affected, the Hungarian authorities requested an opinion from the Commission. Although the Commission concluded that the imperative reason of overriding public interest (IROPI) decision was justified, and the compensation requirement of the designation of 343 ha and restoration of 488 ha of priority habitats was acceptable and appropriate, the Hungarian government understood that any further IROPI cases would be examined very critically. This uncertainty resulted in a 3-year period in which no investments or changes in land use plans on Natura 2000 sites were authorised, including potentially beneficial infrastructure. Overall, the period significantly damaged perceptions of Natura 2000, and nature conservation as a whole, in Hungary.

- In the UK, the formal application of the Habitats Directive provisions to strategic plans only began in 2005 as a result of a CJEU judgement against the UK Government[188]. This is considered to have had a beneficial impact on a range of local and national strategic plans (e.g. development plans, shoreline management plans, river basin and catchment flood management plans and coastal access plans) by preventing unsustainable proposals being embedded in strategic plans over many years that raised unrealistic landowner and developer expectations. (Source: Royal Society for the Protection of Birds (RSPB).)

5.3.3.7 Available funding

The intervention logic of the Directives described in section 2.3 highlights the importance of financial resources as inputs to meet the objectives of the Directives and deliver the required outputs, results and impacts. Funding is necessary for a range of key actions to implement the Directives. Funding is, for example, required by authorities (often in partnership with conservation organisations and researchers) to carry out surveys and research to identify and designate Natura 2000 sites, raise awareness of the Directives and consult with stakeholders, prepare site and species management plans, agreements and contracts, consider the impacts of activities on Natura 2000 sites and protected species (i.e. to evaluate EIAs and AAs), carry out surveillance and enforcement activities, and to monitor and asses the conservation status of habitats and species. Public funding is also normally essential for incentive/compensation measures for landowners in order to secure appropriate management. This is reflected in the responses to the evidence gathering questionnaire, with 58% believing the availability of funding to have had the most influence on the implementation of the Directives.

Many respondents to question S.3 (see section 5.3) noted that the Nature Directives had initially greatly increased the availability of funding for nature conservation (e.g. through EU funded pre-accession projects, the LIFE programme and Common Agricultural Policy (CAP) funded agri-environment schemes). The LIFE programme was mentioned many times as being especially important, even though the total amount of funding that it provides is very low compared to other sources, such as agri-environment programmes (see Sections [8.4] and [8.6]). Consequently, 8% of respondents stated that available funding had supported the Directives (see Table 14). A more thorough review of the evidence on funding under question Y.2 supports these views (see section 6.2).

50% of all respondents (i.e. 86% of those who listed funding as an issue) clearly indicated that while funding levels may have increased, they remain inadequate and constrain further implementation (Table 14). It was possible to deduce from some of the responses whether funding affected the implementation of management measures (e.g. habitat

[187] European Commission (2011) Commission Opinion of 25 January 2011 on request of Hungary pursuant to Article 6(4) Sub Par.2 of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, concerning the modification of the development plan of the Győr town (Hungary). C(2011)351 (25.1.2011), European Commission, Brussels.
[188] Case C-6/04 Commission v. United Kingdom [2005] ECR I -9017.

maintenance and restoration in Natura 2000 sites), which are largely dependent on compensation or incentive payments for land owners (e.g. through the CAP funded Natura or agri-environment measures), or the funding of nature authorities. The funding of management measures was explicitly mentioned most often, with 27% indicating that funds were inadequate. However, some 27% also indicated that funding was a constraint on nature authorities, with many also mentioning that this contributes to other factors affecting implementation (e.g. available knowledge, expertise and enforcement issues – as discussed below).

The studies reviewed above and the majority views of the respondents to the evidence gathering questionnaire are consistent with the findings of other studies (e.g. Kettunen et al, 2011) and the in-depth analysis of funding adequacy in question Y.2 (see section 6.2). The Y.2 assessment concludes that there is strong evidence that there is a significant gap in the financing of the Nature Directives, such that it may prevent achievement of the objectives of the Directives without a very considerable increase in funding. Further discussion of the causes of the shortfall is provided in relation to question C.7 in section 8.6. It concludes that, although it was not envisaged that the implementation of the Directives would be solely dependent on EU funding, there is evidence that a major cause of the funding gap is that the legal obligation of co-financing for Natura 2000 (under Article 8 of the Habitats Directive) through the main EU sectoral funds has not been successfully achieved. The funding of nature conservation measures on agricultural land and in forests is especially dependent on CAP Rural Development Programme (RDP) funds. However, the analysis of funding under Y.2 (see section 6.2) and C.7 (see section 8.6) indicates that RDP measures and their targeting and funding levels have not been sufficiently aligned to the needs of the Nature Directives. Evidence suggests that funding for biodiversity measures under CAP RDPs under the 2014-2020 programme are lower than previously.

5.3.3.8 Stakeholder awareness and cooperation

General stakeholder awareness and collaboration was mentioned by 51% of respondents to question S.3 (see Table 14). Most considered awareness-raising and collaboration with stakeholders to have been inadequate, causing problems and slowing the establishment of the Natura 2000 network. Further analysis of the responses in relation to stakeholder groups affected reveals that this was most often in connection with landowners, farmers and foresters, with 28% of respondents indicating that such stakeholders were affected, most of whom received inadequate consultation. This exacerbated concerns about possible impacts on land uses and property rights, combined with inadequate or absent compensation payments, leading to frequent objections to Natura 2000 designations in some Member States. Where steps were taken to consult with stakeholders early in the Natura 2000 network development process, then this initially slowed the designation process, but often brought greater acceptance of site designations in the long-term.

Similar conclusions were drawn from the literature by the ETC-BD (Naumann et al, 2011) and in the review by Crofts (2014). Documented examples of problems resulting from insufficient public participation in the implementation of the Directives comes from Greece, (Apostolopoulou and Pantis, 2009), Sweden (Stenseke, 2009), Ireland (Bryan, 2012) and Poland (Grodzinska-Jurczak and Cent, 2011).

A clear trend has been visible over the course of the implementation of the Directives towards increased stakeholder participation, and this has avoided or alleviated some conflict with stakeholders. In France, for example, according to the evidence gathering questionnaire response from the Ministry for Ecology, Sustainable Development and Energy, there was strong resistance from some groups to the initial proposals for the Natura 2000 network. The network was therefore subsequently introduced on a gradual basis, through close cooperation with local stakeholders, during both the site designation phase and the site management phase. This cooperation has taken place at various levels, including within site Steering Committees (COPILs) responsible for site governance, during consultations on site DOCOB preparation, and through the work of local coordinators,

who meet with local stakeholders to propose contracts that encourage cooperative behaviour. The Ministry states that 'these local management measures have already delivered effective results'. Another example of an initiative believed to have promoted stakeholder collaboration was the development of the German Association for Landcare (Box 7).

Box 7 Stakeholder engagement in nature conservation through the German Association for Landcare

The German Association for Landcare (DVL) is a 20-year old umbrella organisation of 155 Landcare Associations (LCA) in Germany[189]. These regional non-governmental associations **link nature conservation groups with local farmers and local communities**. The often-opposing interest groups work together in LCAs voluntarily to care for the cultural landscape and traditional farming systems. By pooling interests and local forces, LCAs implement integrated and sustainable land management practices in many rural areas in Germany to protect flora and fauna and to support sustainable development.
Local Landcare coordinators in LCAs develop projects for specific landscape types including scientific measures, financial calculations and the **implementation of agri-environment schemes**. They apply for available state funds and supervise the implementation of activities, mostly by local farmers, as well as monitoring project outcomes. The basis for successful projects is the close cooperation with farmers, local communities, conservation groups and government authorities. Overall, LCAs in Germany work with 20,000 farmers, half of Germany´s communities and have a turnover of EUR 20m/year for practical projects on the ground. Project coordinators combine traditional knowledge and new scientific information to foster farming practices which increase sustainable incomes for farmers, while conserving the diverse mosaic of landscapes and their associated services. DVL also provide manuals and guidelines on Natura 2000 implementation.
Source: NABU response to the evidence gathering questionnaire, citing Deutscher Verband für Landschaftspflege (DVL) e.V.

Some respondents indicated that the involvement of other stakeholder groups had an important influence on the implementation of the Directives. Good cooperation with nature conservation organisations (e.g. in terms of surveying, monitoring, research, identification of Natura 2000 sites, management planning and the assessment of progress) was considered by 15% of respondents to support the Directives (Table 14). As discussed in relation to question S.1 (see section 5.1), BirdLife International and national ornithologists played a major role in informing the SPA identification process through the preparation of Important Bird Area (IBA) inventories (Birdlife International, 2014; Grimmett and Jones, 1989; Heath and Evans, 2000). Nature NGOs and scientists have also assisted with the identification of SCIs, as for example described in Box 8. Several respondents also noted that NGOs played a major role in scrutinising Member State policies, legislation and proposed developments.

Box 8 Role of NGOs in Natura 2000 designation process in the new Member States

The designation of Natura 2000 networks in the new Member States in Central and Eastern Europe was influenced by the NGO sector, which played the role of watchdog and data supplier. In response to government delays, the NGOs submitted 'shadow lists' of proposed SCIs directly to the Commission. These were used in the biogeographical seminars to supplement the lists submitted by the Member States.

- In Poland the first list of proposed SCIs was prepared jointly by government and NGOs in 2004, but the Polish Government submitted a shorter list, covering only 11% of the territory (Cent et al, 2013), later assessed as insufficient by the Biogeographical Seminar (EEA, 2007). In response, the Polish NGOs sent their own list of proposed sites covering about 20% of Polish territory190. The Commission formally urged Poland to advance Natura 2000 designation in 2007 (Cent et al, 2007). This coincided with a change of government and institutional reforms, leading to discussions with NGOs and the involvement of NGOs in a large nature inventory of Polish forests, overcoming resistance by

[189] www.landschaftspflegeverband.de accessed 17.02.16
[190] http://docplayer.pl/6099725-Propozycja-optymalnej-sieci-obszarow-natura-2000-w-polsce-shadow-list.html

the State Forests Authority to Natura 2000. The result has been a significant expansion of the area and number of SCIs.

- In Hungary the process of implementing the Nature Directives fostered cooperation between the NGO sector and the government (Cent et al, 2013). BirdLife Hungary prepared the SPA proposal. The Ministry of Environment submitted a first proposed SCI list in 2004, including most of the SCIS suggested by the NGOs. Most of the suggestions were accepted by the Commission in the biogeographical seminar, and the final list of Natura 2000 sites covered almost 21% of the country. NGOs, assigned by the government, actively took part in communicating Natura 2000 aims to local stakeholders and in monitoring sites.
- In Slovenia, the pre-accession designation process was dominated by expert knowledge within the Ministry of Environment and Spatial Planning, with a low level of politicisation and little controversy (Boh, 2004). The Slovene BirdLife partner undertook the designation of SPAs (WWF, 2005). Some areas were taken out of the initial SCI designation proposal because of plans for ski resorts and wind farms (Boh, 2004). A shadow SCI site list was produced by an NGO (WWF) (Pecnik, 2004), and biogeographical seminars in 2005191 and 2006192 significantly increased targets for coverage of the SCI network.

There were also examples of positive collaboration with businesses, who are increasingly aware of the need to manage biodiversity associated business risks, with more progressive businesses seeing opportunities to make positive contributions to biodiversity objectives. Some 9% of respondents considered collaboration with businesses to be sufficient to contribute to the implementation of the Directives, while 5% indicated that there had been problems that had constrained progress (Table 14). Cooperation with hunters and sport anglers was mentioned by 6%, most of whom stated that there had been problems hindering implementation, but some noted positive initiatives, such as the collaboration on the development of the guidance on sustainable hunting (European Commission, 2008a).

5.3.3.9 Available knowledge

The level of ecological knowledge, such as the distribution of European protected species and habitats and their ecological requirements, clearly has an important influence on the effectiveness and efficiency of the implementation of the Directives. 48% of responses to question S.3 believed that the availability of relevant knowledge was an important factor influencing the implementation of the Directives (Table 14). Many respondents noted that Member States have greatly increased their ecological knowledge as a result of the Directives, although data and knowledge deficiencies that persist are constraining the identification of appropriate Natura 2000 sites, the development of management plans and the reliable assessment of the impacts of activities on habitats and species. Consequently, 40% of respondents state that, overall, the level of knowledge now represents a constraint on progress.

Some respondents noted that where Member States have invested in gathering detailed data, this has often helped to achieve nature conservation objectives and minimise delays and cost to the developers. A detailed analysis of the evidence relating to knowledge gaps and their impacts is carried out under question Y.8 (see section 6.8) and examples of good practice are provided in relation to question Y.5 (see section 6.5).

5.3.3.10 Coherence with other EU policies and funds

As described in the intervention logic section 2.3, the Nature Directives are not adequate to achieve their objectives on their own, nor are they intended to be. Instead, they rely on supporting and complementary interactions with other policies, such as in relation to

[191] Alpine biogeographical seminar, Kranjska Gora – 30-31. May 2005. Conclusions. http://www.natura2000.gov.si/uploads/tx_library/alpski_biogeografski_seminar.pdf
[192] Continental biogeographical seminar: Darova (CZ) 26-28 April 2006. Conclusions. http://www.natura2000.gov.si/uploads/tx_library/celinski_biogeografski_seminar.pdf

regulation of some activities (e.g. those causing pollution) and funding (e.g. of land management measures). This is reflected in the responses to the evidence gathering questionnaire. 30% of respondents considered other EU and national policies and funds (such as grants that influence agriculture, forestry and fisheries), to have an important influence on the implementation of the Directives (Table 14). However, the vast majority of these (26%) state that other policies and funds hinder implementation, as they have made it difficult to secure appropriate management of habitats, especially outside Natura 2000 sites (i.e. where there are less land and sea use restrictions). The ETC-BD review also notes that the central role of low intensity agriculture and forestry in preserving valuable habitats is not reflected in Member State policy priorities and site management (Naumann et al, 2011).

Only one respondent provided direct evidence to support their views in relation to question S.3. This was the Danish Society for Nature Conservation, which referred to a statement by the farmers' organisation 'Landbrug & Fødevarer'. They say that farmers consider it to be more desirable to continue conventional farming compared to engaging in efforts to manage and recreate habitat, because funding is not sufficient to be an attractive alternative, compared to conventional farming under the CAP. In fact, they state that there a very large disincentive to contribute to implementation of the Nature Directives by entering agreements with compensation, and farmers are, in many cases, advised against it by their organisations. However, although it is difficult to draw clear and reliable conclusions from this evidence, other evidence is described in more detail under the CAP section of questions C.4/C.5 (see section 8.4). This provides some support for the view that payments under the CAP Natura and agri-environment measures are not strong incentives for some farmers to adopt practices that increase their contribution to nature conservation objectives.

As concluded under question C.7 (Section [8.6]), one of the major reasons for the underfunding of the Nature Directives is that the uptake of EU funds for biodiversity is hindered by national level priority setting (i.e. competition with broader sectoral priorities and overriding policy goals, such as support to economic activities and infrastructure).

5.3.3.11 Objective setting and management planning

As described in section 2.3 Member States are required to set conservation objectives for their Natura 2000 sites and to establish the conservation measures necessary to achieve these objectives. While Member States are free to decide how to establish their conservation objectives and measures, the Commission recommends that this includes the preparation of site management plans. This is because the development of management plans according to best practice principles, such as clear site objective setting and adequate participation of landowners and other key stakeholders, is widely regarded as an effective means of addressing stakeholder concerns[193]. They can also form the basis for management agreements and the release of funding under the CAP Natura 2000 measure and/or agri-environment schemes. However, while many respondents to the evidence gathering questionnaire noted the value of management planning in this respect, 17% considered such planning to be a constraint on implementation (Table 14). This appeared to be primarily due to slow progress with management planning, but also in some cases the management planning process had caused problems (e.g. through top-down approaches). For example, according to the Czech NGO Zeleny Kruh, there have been problems with the preparation of management plans produced by the Nature Conservation Agency of the Czech Republic together with regional authorities. According to the NGO, there were concerns over the quality of the plans, for example as a result of the conservation principles for sites being set at national level, rather than regionally.

193 http://ec.europa.eu/environment/nature/natura2000/management/docs/comNote%20conservation%20measures.pdf accessed 17.02.16

Another issue constraining the development of effective management plans has been the limited and varying development of national and regional conservation objectives (i.e. the clear definition of Favourable Conservation Status for EU protected habitats and species). The lack of such objectives can also make it difficult to assess the potential impacts of activities on species and habitats. As discussed under question S.1 (see section 5.1) this has led in some Member States to an overly risk-averse approach to dealing with potential impacts on some protected species (in accordance with Article 12 of the Habitats Directive), such that every individual is strictly protected rather than the conservation status of the population concerned. For example, NGOs and DEFRA UK, agree that insufficient mapping and monitoring and establishment of conservation objectives and definitions of Favourable Conservation Status has led to some problems where Great Crested Newts are affected by developments (see Box Box 36). There are also varying standards and approaches amongst Member States in the interpretation of Favourable Conservation Status without sufficient development of favourable reference values (McConville and Tucker, 2015).

However, as described further under question S.1 (see section 5.1) management planning is progressing well in some Member States. For example, according to the Agency for Nature and Forests in Flanders, the establishment of conservation objectives and further development of the management plans has given landowners and stakeholders more insight into the legal implications for their land and activities. They also enable flexibility in permitting procedures by focusing on the overall requirements for an improved conservation status in the relevant sites, rather than simply prohibiting certain activities.

5.3.3.12 Governance issues

Governance issues, such the organisational structures and responsibilities of competent authorities in relation to national, regional and local administrations (i.e. vertical governance) and interactions across administrative departments can have important effects on nature conservation actions (e.g. in relation to overall policies, funding allocations, permitting, enforcement actions and reporting). 23% of respondents stated that such issues have affected the implementation of the Directives, with most (20%) indicating that governance issues have been a hindrance (Table 14). In some cases these were related to the initial implementation phases, where Member states were coming to terms with requirements and learning. Some countries report ongoing problems, for example due to organisational restructuring and funding cuts to nature organisations (see further discussion in relation to efficiency questions in section 6).

Examples of governance issues referred to by respondents to the evidence gathering questionnaire include the additional complexity of federal governance structures (ASFiNAG nature authority and WWF in Austria), delays with the establishment of suitable management bodies for Natura 2000 sites in Greece (Ministry of Reconstruction of Production, Environment and Energy), and poor cooperation between nature conservation, agriculture and forestry administrations in Romania (Federatia Coalitia Natura 2000).

5.3.3.13 Enforcement of legislation and penalties

In order to be effective the nature legislation needs to be enforced where it is contravened, and this is the responsibility of the Member States in the first instance. The European Commission, as Guardian of the Treaties, has the responsibility for ensuring that the Member States are carrying out and enforcing the EU legislation. However, evidence from S.1 (see section 5.1), such as in relation to illegal killing of species, developments not being subject to AA and inadequate compensatory measures for impacts, indicates that there are some enforcement deficiencies. Krämer (2014) provides an analysis of the enforcement of the Directives by the European Commission and concludes that not enough is being done to uphold the law.

16% of respondents consider enforcement of the Nature Directives' to have been inadequate, creating a constraint on the implementation of the Directives Table 14. These concerns related to a number of issues, such as hunting, the impacts of intensive agriculture and forestry on European protected species and habitats, the implementation of compensation measures for impacted sites and the impacts of pollution incidents. As noted above, such problems may be ultimately due to limited funding and/or political support.

Examples of enforcement issues provided by the respondents included:

- The impacts of hotel building (Sunny Beach resort), golf courses (Tracian cliffs) and wind farms on SPAs in Bulgaria (Source: Bulgarian Society for the Protection of Birds, and the Bulgarian Tourist Chamber).
- In the UK, Wildlife Link state that inadequate enforcement has resulted in a systematic failure to prevent persecution, through the deliberate killing, nest destruction and disturbance of raptor species (in particular the Hen Harrier), citing Fielding et al (2011). There have also been increases in contraventions of the legislation to protect bats and their roosts. Furthermore, the fines given following conviction are set at a very low level, such that it is cheaper to break the law (Tingay, 2015).
- According to Friends of the Earth Europe, unauthorised mineral extraction has been undertaken on a significant scale at Lough Neagh in the UK since it was designated as a SPA. It is estimated that Lough Neagh provides some 20-25% of Northern Ireland's annual sand production and has been at up to 1.7 million tonnes per annum, yet there is no Habitat Regulations Assessment or EIA for this activity.

There is also well-documented evidence of substantial problems with illegal hunting in Malta, as indicated by BirdLife Malta in the evidence gathering questionnaire. However, Malta Environmental Planning Authority and the Wild Bird Regulations Unit stated that enforcement has been progressively strengthened 'through the introduction of harsher legal deterrents against bird-related crime and hunting violations; through investment in the capacity building of enforcement institutions (strengthening of the Administrative Law Enforcement Unit within the Malta Police Force, creation of the Specialist Enforcement Branch of the Wild Birds Regulation Unit, training initiatives, investment in IT and technical enforcement infrastructure, etc); through public education and regulatory awareness initiatives (e.g. support for educational programmes run by NGOs, awareness raising campaigns aimed at hunters, etc)'[194]. BirdLife Malta recognise that improvements have been made, but note that further action is needed.

5.3.3.14 Authorities' expertise and experience

9% of respondents stated that problems have arisen as a result of limited expertise and inconsistent standards being applied by authorities, such as with respect to AA, EIAs and permitting procedures (Table 14). Similar conclusions were drawn by Kati et al (2015) and supporting evidence comes from a Commission study of AA procedures (Sundseth and Roth, 2013). For example, according to the Association BIOM in Croatia, the poor quality of EIAs/AAs/SEAs is considered to be one of the biggest obstacles to the effective implementation of the Directives, with some situations arising where expert opinions from the State Institute for Nature protection relating to wind farm applications have been overruled. Studies of the implementation of the Nature Directives have also revealed problems resulting from a lack of training and expertise in Italy and the Netherlands (Ferranti et al, 2010) and in Greece (Apostolopoulou and Pantis, 2009).

[194] http://environment.gov.mt/en/Pages/WBRU/Reports-and-Statistics.aspx

Several respondents noted that this issue also appears to have been a particular problem where decision-making has been devolved to regional and local administrations that may lack the expertise and experience to cope with complex nature legislation issues. This has, in some cases, led to the approval of activities that have had significant impacts on habitats and species. In other cases it has led to a risk-averse policy among competent authorities, whereby development projects that could be designed or managed in a way to avoid impacts are rejected, and/or heavy burdens are placed on the developers to prove the absence of impacts. There is evidence that, where Member States have learned from their experiences and invested in training, guidance and provided adequate resources for the competent authorities', decision-making on AA and permitting, etc. is more consistent, effective and efficient.

5.3.3.15 Integration with spatial planning, SEA and EIA

Strategic spatial planning, combined with best practice and joined up SEA, EIA and AA procedures, can help to identify potential conflicts early in development cycles, thus helping to avoid economic social and biodiversity impacts. This is particularly effective where good up-to-date spatial data are available on the location of EU protected species and habitats. As indicated in (Table 14), such practices do appear to be supporting the implementation of the Directives to some extent, as they were mentioned by a small proportion of respondents to the questionnaire (3%). However, there also appears to be scope for further improvement, as 6% considered that these processes represent a hindrance to progress.

Further discussion of the interactions between the Nature Directives and SEA and EIA can be found in question C.2 (see section 8.2), with examples of good practice presented in relation to question Y.5 (see section 6.5).

5.3.4 Key findings

- The availability of public funding has probably had the most influence on implementation. Funding constraints on authorities have adversely affected the establishment of the Natura 2000 network, as well as other important actions, such as stakeholder engagement, management planning, permitting and enforcement measures. Public funding is also usually essential for incentive/compensation measures for landowners to secure appropriate management. Although the Directives have undoubtedly increased the availability of EU funding, there is strong evidence to suggest that this is insufficient and/or difficult to access, and will continue to be a constraint on implementation (see section 6.2).
- The degree of political support for the Directives was frequently listed by NGOs and other stakeholders as a key factor that has affected implementation through its effects on funding (e.g. with respect to the prioritisation of funding) and key implementation decisions, such as the ambitions of the Natura 2000 network.
- Uncertainty regarding the implications of some legislative provisions has led to some delays in transposition, leading, in turn, to infringement procedures, legal cases and further delays. Case law has, however, clarified interpretation and confirmed where Member States have acted lawfully in transposing and implementing their provisions. This process of learning in collaboration with stakeholders has also been supported by Commission guidance.
- Lack of awareness of the implications of the Directives for, and among, landowners and local communities slowed the establishment of Natura 2000. Concerns over possible impacts on land uses and property rights, combined with inadequate or absent compensation payments, led to objections in some Member

States. While early consultation with stakeholders on Natura 2000 initially slowed the designation process, it is expected to yield long-term benefits through greater acceptance of site designations and participation in site management.

- Stakeholder cooperation is a major factor, particularly in relation to stakeholders who utilise biodiversity, such as hunters, fishers and sport anglers (who benefit from the sustainable management of species and their habitats). Partnerships between nature authorities and nature conservation organisations have been instrumental in greatly increasing surveying, monitoring, research and management planning. Engagement with businesses has also had a role to play, as they have become increasingly aware of both the need to manage biodiversity associated business risks and the opportunities to make positive contributions to biodiversity objectives.
- The level of ecological knowledge, such as the distribution of EU protected species and habitats and their ecological requirements, clearly has an important influence on the effectiveness and efficiency of the implementation of the Directives (see section 6.8 for details).
- Although it is not mandatory under the Directives, the development of management plans according to best practice principles (e.g. clear site conservation objective-setting and adequate participation of landowners and other key stakeholders), is considered to be an effective means of addressing stakeholder concerns and forming the basis for management agreements. However, as discussed under question S.1 (see section 5.1), there are problems with the slow progress and poor quality of management planning in some Member States.
- Limited and varying development of national and regional conservation objectives frequently constrained strategic and site-level management planning. Associated issues were the difficulties in assessing the potential impacts of activities on species and habitats. In some Member States this has contributed to an overly risk-averse approach to dealing with impacts on some protected species, such that the focus is on the protection of individuals rather than maintaining the conservation status of the population concerned.
- The existence of incentives, such as payments that encourage agricultural, forestry and fishery systems and practices, can make it difficult in some circumstances to secure appropriate management of habitats, especially outside Natura 2000 sites (i.e. where there are less land and sea use restrictions).
- Good integration of the Nature Directives with planning and impact assessment procedures is crucial. Strategic spatial planning, combined with best practice and joined-up SEA, EIA and AA procedures can help to identify potential conflicts early in development cycles, thus helping to avoid economic, social and biodiversity impacts. This is particularly effective where good up-to-date spatial data are available on protected species and habitats.
- There is evidence that problems have arisen as a result of limited expertise and inconsistent standards with impact assessments and permitting procedures. This appears to have been a particular problem where decision-making has been devolved to regional and local administrations, which often lack the expertise and experience to cope with complex nature legislation issues. In contrast, where Member States have invested in providing training, guidance and adequate resources, decision-making was found to be more consistent, effective and efficient.
- Many NGOs stated that a lack of enforcement of the Nature Directives has been a widespread problem, e.g. in relation to hunting, disregard of the impacts of intensive agriculture and forestry on European protected species and habitats, the implementation of compensation measures for impacted sites and the impacts of

pollution incidents. Even when enforcement activities are carried out, there is evidence that penalties are often inadequate to deter further offences.

It is important to note that some of the problems listed above are largely historical, because the action in question is now complete (e.g. problems related to transposition of the Directives), or are becoming less significant as a result of improved practice (facilitated by experience sharing, training and Commission guidance.

5.4 S.4 - Have the directives led to any other significant changes both positive and negative?

5.4.1 Interpretation and approach

The analysis assesses whether or not the implementation of the Nature Directives has brought about any significant environmental, social or economic effects or changes, either positive or negative, not intended by the Directives at the time of their approval but which have nonetheless impacted on its effectiveness. Therefore the meaning of 'other significant changes' is defined through the following judgement criteria: The changes should be the result of effects that were either unintended or unforeseen at the time of the approval of the Directives (causality) and they should be significant (magnitude). The judgement criteria for this question require that causality and magnitude are met cumulatively for an effect or change to be analysed under this question.

The Nature Directives did not undergo an impact assessment procedure prior to their approval and therefore the intended effects of the Directives at the time of their approval were not formally stated. For this reason, the indicators used to determine whether a change is intended are the following:

- The effects/changes are not intended by the legislator, therefore are not defined as objectives, results or impacts of the Nature Directives, as described in the intervention logic contained in Table 1 in section 2.3 of the Report
- The effects/changes are not expected by stakeholders and are recognised as unintended or unforeseen in the evidence gathering questionnaires or other evidence provided.
- The effects are indirect expected changes with an impact on the implementation of the Directives towards the achievement of its objectives.

Some of the identified effects/changes overlap with issues analysed under other questions (e.g. climate change in question R.1 in section 7.1 and C.3 in section 8.3, level playing field and internal market in question C.6 in section 8.5, or administrative burden and ecosystem services under question Y.1 in section 6.1). Discussion of these effects/changes is not repeated here.

5.4.2 Main sources of evidence

The following sources of information were used:

- Responses to the evidence gathering questionnaire, complemented by relevant case studies and detailed evidence shared by stakeholders.
- The results from the 10 National Missions to Member States and meetings with relevant Commission services. In some cases, the visits explored in greater detail the specific effects/changes raised in the evidence gathering questionnaire.
- The results of the online public consultation, in particular the replies received to the open question confirmed the information received in the evidence gathering questionnaires on unintended changes brought about by the Directives.
- EU-wide studies on the implementation of the Nature Directives, as well as national documents and literature referred to in the responses to the evidence gathering questionnaires.

It is worth noting that, by its very nature, it is difficult to systematically analyse or look for evidence of such changes.

5.4.3 Analysis of the question according to available evidence

The Directives have brought about unintended changes or effects that were not envisaged by the objectives of the Birds and Habitats Directives. The magnitude of these effects/changes has to be significant to have impacted effectiveness of the Directives.

Approximately 80% of the 101 responses to this question in the evidence gathering questionnaire considered the Directives to have led to 'other significant' positive changes, with about 30% of the respondents considering the Directives to have led to 'other significant' negative changes. In some cases, respondents stated that the Directives had led to both positive and negative changes. The changes which meet the judgment criteria, and which are not dealt with under other questions, are presented below.

5.4.3.1 Increased public awareness

Increased public awareness is not an objective of the Nature Directives under the intervention logic in Table 1 in section 2.3 of this study. Although Article 22 of the Habitats Directive includes a supplementary provision requiring Member States to promote education and general information on the need to protect species of wild fauna and flora and to conserve their habitats and natural habitats, similar to raising awareness, this is neither an objective in itself nor a direct intended effect, but rather a supporting measure to achieve the conservation objectives.

Increased awareness of nature among the public is an indirect effect triggered by the implementation of the Nature Directives and is, overall, the positive change most frequently mentioned by the consulted stakeholders. Therefore, the judgment criteria, including the causality test mentioned in the section 5.4.1 above, are met in this case. The increased public awareness of nature has brought behavioural changes resulting in improved effectiveness to achieve the stated nature conservation objectives. Thus it constitutes a significant unintended effect of the Directive.

The proactive approach taken by some national authorities to raising awareness about the Nature Directives has been one of the reasons for this effect, leading to behavioural changes and greater support for implementation of the Directives. The implementation of the Nature Directives and, in particular, the site selection and designation process has not been immune to problems. The first step for the establishment of the Natura 2000 network focused on site selection. The scale of this work was unprecedented, and few countries initiated proactive awareness-raising campaigns to explain the impact of Natura 2000 in practice for stakeholders affected by the site designation. This lack of early communication generated a number of problems, with certain sectors reacting negatively to the implementation of the Nature Directives. In France, Finland and parts of Germany, major campaigns were launched against Natura 2000 during the 1990s in response to fears that it would affect livelihoods and restrict activities (Sundseth, 2004). In France, difficulties in the designation of Natura 2000 sites led to a complete freeze in 1996 in the implementation of the Nature Directives. The initial hurdles in France were resolved with a new system framed within an awareness-raising and information scheme. Implementation is overseen by a Steering Committee (COPIL) for each site, and local coordinators, responsible for raising awareness of Natura 2000, facilitating agreement or contracts and encouraging best practice behaviours[195]. According to the French authorities, this system

[195] *L414-1-III and R414-3 of the French Environmental Code.*

is widely credited with the increased acceptance of the Nature Directives[196]. Over the years, the need for raising awareness has become much more important than expected (not recognised by the legislator), to the extent that it has been formally recognised. The need for an improved communication strategy was acknowledged in May 2002 when '… the 25 EU Member States signed the 'El Teide Declaration' to emphasise their commitment in promoting greater awareness and understanding of Natura 2000' (Sundseth, 2004).

Immediately after, Slovenia developed an initiative to overcome site selection hurdles through awareness raising activities, and is now one of the Member States with the highest proportion of territory designated as Natura 2000 (37.5%)[197]. The level of opposition to the Nature Directives in Slovenia was reduced by increasing the degree of awareness among the population (Hlad, 2004). According to a 2015 survey, Slovenia is one of three Member States where the majority of the population (58%) has heard of Natura 2000, with about 30% claiming to know what the network is[198].

The private sector representatives (Euromines and Irish Business and Employers Confederation, IBEC) noted that awareness of nature and the Directives has increased among companies, which now have greater knowledge and understanding of the requirements stemming from the Directives, and plan their activities accordingly. This has led to the development of business opportunities and innovative solutions that combine economic development with environmental protection (UEPG, CEMBUREAU).

Increased awareness has led to behavioural changes that have impacted the effectiveness of the Directives' implementation by generating a genuine cultural change in the importance of nature conservation in decision-making and management approaches (e.g. France and Greece) and promoting innovative solutions to improve the implementation of nature conservation objectives[199]. Evidence from several stakeholders (German and UK NGOs) show that the Nature Directives have acted as drivers of 'eco-innovation' linked to the development of renewable energy industry, for example, in order to address the ecological impacts of wind energy deployment in Natura 2000 sites. In the UK, the regulations protecting marine species – such as the Offshore Marine Conservation Regulations which implement the Nature Directives - incorporate the opportunity for developers to adopt innovative installation techniques to reduce ecological impact and improve timescales.

An interesting example showing how increased awareness has led to innovative solutions with nature conservation foremost in the decision-making process, is the case of Dibden Bay Container Terminal project, which aimed to expand the UK's port of Southampton, but which was not permitted to expand on protected habitats. The UK NGOs believe that this project drove the sector to explore the potential to increase port productivity through modernisation, without causing unacceptable damage to a Natura 2000 site. In some cases, the innovative approaches are presented in non-binding guidelines. One of the examples of this is the UK's 2013 Technical Guide for New and Existing Buildings providing standards and guidance on biodiversity and the built environment[200]. The impact on innovative solutions is also recognised in the available literature (Roddis, 2014), which refers to the Nature Directives as an example of innovation being driven by environmental regulations.

The discussion above shows that the Nature Directives have raised public awareness of nature. The proactive approach taken by many Member States has increased public understanding and helped to avoid public objections to nature protection (e.g. France and

[196] National description of the implementation process related to site designation and management approaches (Articles 6(1) and 6(2) of the Habitats Directive), L'Atellier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc, accessed 4.11.15

[197] Natura 2000 Newsletter, number 38, June 2015, available at: http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat38_en.pdf, accessed 5.11.15

[198] Special Eurobarometer 436 "Attitudes of Europeans towards biodiversity", European Union, 2015.

[199] Response from World Wide Fund for Nature (WWF) European Policy Office.

[200] http://www.ribabookshops.com/item/designing-for-biodiversity-a-technical-guide-for-new-and-existing-buildings-2nd-edition/79859/, accessed 4.11.15

Slovenia). This increased public awareness has also led to behavioural changes, prioritising nature protection in decision-making and promoting innovative solutions that have improved the implementation of the Directives (e.g. ecological impacts of wind energy deployment). It is therefore an unintended indirect change that has contributed to improve the implementation of the Directives towards the achievement of its expected conservation objectives.

5.4.3.2 Increased stakeholder participation and new forms of governance

The nature conservation concept provided by the Nature Directives (Articles 2 and 6of the Habitats Directive) is enshrined by the sustainable development principle, enabling integrated management and taking conservation and socio-economic considerations into account. Such a nature conservation concept is one of the objectives of the Directive. In order to attain the desired results and impacts, the Member State authorities have implemented the Directives in a way that has resulted in increased stakeholder participation and new forms of governance. These results constitute a significant unintended change not set out as one of the Directives' objectives or results. Thus, increased stakeholder participation meets the judgement criteria for this question.

Indeed, the obligation established under Article 6(1) does not require stakeholder involvement in the definition of the site conservation measures (or management plans, if needed). However the European Commission 2013 note on the establishment of necessary conservation measures, advises that:

'In order to define and establish adequate and feasible conservation measures, it is necessary to have a sound information base … The main land uses and activities that can influence the conservation status of relevant habitats and species should be identified, as well as the identification of all relevant stakeholders that need to be involved or consulted in the management planning process. This analysis allows considering potential conflicts and possible ways and means to solve them'.

However, the Commission Guidance on Article 6 of the Habitats Directive published in 2000 did not refer to the need to involve stakeholders in the definition of conservation measures.

Article 6(3) does not require mandatory public participation in the assessment of the impacts of projects and activities in Natura 2000 sites. The competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public (see section 8.2). Again, the Commission Guidance on Article 6 does not consider public participation mandatory, and refers instead to the Aarhus Convention provisions.

Based on these arguments, it can be concluded that stakeholder participation was not an intended objective of the Directives but has been an indirect effect whose importance has evolved over time. This change is perceived by the stakeholders as unforeseen or beyond expectations., and was highlighted by most of the stakeholders (EU level NGOs, e.g. ECNC; EU level private sector representatives, e.g. RGI, UEPG, CEMBUREAU, IMA; nature authorities, e.g. the UK; Member State NGOs, e.g. Slovakia) and by the specialised literature (Beunen and de Vries, 2011).

In the case of one of the Belgian regions, regional and local stakeholders were involved in the establishment of the conservation objectives, development of management plans, initiation of LIFE projects for restoration of natural values and development of recreational infrastructure (Wouters, 2013). In France, in order to ensure the effective management of Natura 2000 sites, the government developed a system whereby local landown-

ers and land users are involved in agreeing a management plan for each site[201]. These plans are developed through a local Steering Committee (COPIL) in each site made up of local authorities, landowners and land users, representatives from rural agencies, sectoral organisations, nature NGOs and ecology experts, and anyone else who has an interest in the Natura 2000 site. The Steering Committee is responsible for site management and governance decisions. Committee meetings provide an opportunity for all parties to discuss the implementation of the conservation objectives of the site (DOCOB) in a way that best fits with the local socio-economic activities and interests in the area. Once a consensus has been reached, the management plan is officially approved by the State. Local landowners or users are then encouraged to enter into different types of management contracts with the local authority to help to implement the management plan. The process promotes an integrated approach to Natura 2000 and has proven to be very successful, winning the support of many landowners and users (Sundseth, 2012). This largely unforeseen effect triggered by the Nature Directives covered other aspects that went beyond expectations, for example, stakeholder participation also increased in the Natura 2000 site designation process. Under the Habitats Directive, the site designation process is based on scientific information and evidence, with a biogeographic regional approach, and stakeholders with the relevant scientific data were empowered to provide input and participate (e.g. the involvement of the members of the European Habitats Forum or the European Landowners Organisation).

There are other examples of forms of stakeholder participation/cooperation brought by the Directives. At the Member State level, Italian Transmission System Operator (TSO), Terna, worked together with competent authorities and NGOs to ensure that biodiversity criteria were integrated into the national grid development plan (RGI, 2013). The Greek NGOs referred to an interesting case of stakeholder cooperation on the LIFE project to restore Lake Stzmfalia, part of Natura 2000, in Greece. Within this project, Pireaus Bank (one of Greece's largest banks), the Society for protection of Prespa, the local authority, an expert consultancy and a research centre all collaborated on the restoration, protection, and management of the site.

In Italy, the authorities responsible for the management of the state marine natural reserve of Torre Guaceto worked with fishermen and local stakeholders to set management measures. In the Oder Lands Riparian Zones (Kraina Łęgów Odrzańskich) in Poland, a partnership was formed between NGOs and local government to ensure the conservation of Natura 2000 areas alongside sustainable growth, including the development of tourism, stimulation of local activity and enterprise, education, acquisition of skills and conservation work. The Irish NGOs provided an example where the public participated in carrying out monitoring activities. More specifically, over 7,000 volunteers contributed over 20,000 hours to Bat Conservation Ireland bat monitoring schemes in the period 2003–2014. Similar activities took place in other Member States (e.g. nature authority Germany).

At the EU level, partnerships between NGOs and non-energy extractive industries (UEPG, CEMBUREAU) recognise the positive contribution made to biodiversity conservation by non-energy extractive industry through the restoration and rehabilitation of mining sites at the end of the project cycle (European Commission, 2010a) leading, in some instances, to their designation as Natura 2000 sites. In the Czech Republic, restoration of a stone quarry in Mašovice, which now forms a part of Natura 2000 network, received a UEPG Sustainable Development Award in 2007[202].

While this trend has been confirmed in those countries where public authorities have facilitated participation, in others a failure to meet stakeholder expectations continues to create conflict. Stakeholders in some Member States (e.g. Slovakia) claim that some stakeholders were not consulted when establishing Natura 2000 sites, while in Greece, a

[201] National description of the implementation process related to site designation and management approaches (Articles 6(1) and 6(2) of the Habitats Directive), L'Atellier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc, accessed 3.11.15

[202] http://www.uepg.eu/uploads/Modules/Publications/pub-14_en-uepg_awards_brochure_2007.pdf, accessed 18.12.15

study conducted among national, regional and local stakeholders concluded that participation in site management exists mainly on paper (Apostolopoulou et al, 2012). The same study concluded that stakeholder engagement seems to take place through administrative documentation and to be confined to personal contacts and initiative (Apostolopoulou et al, 2012). The Spanish private sector representatives (the Fisheries association, landowners and land users) and NGOs all raised concerns about a lack of stakeholder participation in the development of management plans and conservation measures for Natura 2000 sites. However the evidence presented in this sub-section show that, overall, the Directives have provided the platform to facilitate a level of participation that did not exist before.

However, stakeholder participation seems to be insufficient in relation to the implementation of the Directives' standards for species protection, in particular in areas outside Natura 2000 sites. Private sector stakeholders have raised concerns in relation to the way in which socio-economic considerations are taken into account and the extent of their involvement in decision-making on site management. Evidence shows that landowners and/or property developers in the Netherlands feared the presence, or the development, of nature on plots that they planned to develop. For example, fallow plots in Rotterdam Harbour were ploughed regularly in order to prevent a natural environment from developing there (nature protection authority in the Netherlands). These concerns have led to the development in the Netherlands and Flemish regions in Belgium of innovative, flexible systems (such as the concept of 'temporary nature') which increase private landowners' participation in restoration outside of Natura 2000 sites. While this initiative should not be considered a replacement for protection requirements in Natura 2000 areas, it is an innovative and pragmatic approach which promotes a collaborative approach to nature conservation by private landowners (Schoukens, 2015).

The open question in the online public consultation questionnaire also received responses citing the problem of the lack of participation of landowners and users in the definition of the conservation measures and management plans required for Natura 2000 sites. In the response sample reviewed, 14% (114) of these comments came from individuals, with 17% (36) coming from organisations. 89 individuals and 24 organisations providing those comments came from the agriculture, forestry, fisheries and hunting sectors. Some pointed out that landowners and users have very good knowledge of nature protection and often know how best to manage the land in a sustainable nature-friendly way.

The Directives have also led to new forms of governance at different administrative levels, from new formal structures generated by government decision, to more informal initiatives involving different stakeholders.

An example of a new governance system is found in Spain, where the nature protection authorities and the tourism authorities have developed a voluntary regulatory framework (based on a decision adopted in 2014 at government level on Natura 2000 and tourism) to promote the marketing and recognition of business in Natura 2000 areas[203]. In terms of informal governance mechanisms, in the Netherlands the Directives have led to the development of cooperation agreements between different stakeholders. For example, the Dutch nature protection authority noted that the 2010 Dutch manifesto 'Nature, landscape and economy in a vital country' was signed by eight parties, including 'green' organisations, the recreation sector, the agricultural sector and rural organisations. The Natura 2000 programme in the Netherlands has contributed to recognition by various sectors of the advantages of certain forms of self-regulation, such as codes of conduct and charters (Snethlage et al, 2012).

At the EU level, there are several initiatives and platforms (e.g. Sustainable Hunting Initiative, Renewables Grid Initiative (RGI, Large Carnivore Platform, cooperation with cement industry, Ecoports), which fostered partnerships between different stakeholders[204] [205] [206] [207] [208].

[203] Plan Sectorial de Turismo de Naturaleza y Biodiversidad (RD 416/2014).
[204] http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/index_en.htm, accessed 4.11.15
[205] http://www.renewables-grid.eu/, accessed 4.11.15

The changes in governance structures to involve stakeholders and actors in the decision-making process has also been recognised in the literature (Beunen and de Vries, 2011). Such changes imply a shift in focus for many government organisations that have to conduct a planning process in which other organisations become involved. Government organisations are responsible for conducting the decision-making process and involving other actors, while still remaining the legal authority that takes such decisions. Their role, based on constitutional powers, is shifting towards the coordination of various stakeholders' participation within the planning process. The implementation of Natura 2000 at site level is an example of the current transitions in governance. National governments are responsible for the management of these Natura 2000 sites which, in many cases, is delegated to local and regional authorities. These responsibilities entail balancing the conservation objectives of the Natura 2000 site with social and economic interests. In many areas this requires other public and private parties to agree to the management schemes. The management of Natura 2000 sites includes organising discussions, making decisions about social and economic activities and dealing with conflict. For the governance of Natura 2000 sites, these stakeholders are landowners and users in and near the sites, whose activities need to be balanced with conservation objectives. The design of the planning process has been found to greatly influence the outcome.

The literature (Beunen and de Vries, 2011) concludes that it is the decision of the responsible authorities whether or not to design a planning process built on cooperation and mutual trust. This conclusion is confirmed by some stakeholders (e.g. German NGOs) who have highlighted that the effectiveness of voluntary agreements depends on their design, adequate control and enforcement, and on the level of financial incentives for the land users compared to alternative options. In addition, the rules and requirements of any voluntary agreement adopted at national level (such as that described in Spain) need to be adapted to the local context. One recognised weakness of voluntary agreements is their dependency on political will, which can change not only when governments change, but also when legal pressure from the EU diminishes.

There is evidence that the Directives have strengthened governance and cooperation within public bodies in some federal or more decentralised countries. In Spain, for example, the nature protection authorities pointed to increased cooperation and coordination of conservation and planning authorities, and greater weight being given to biodiversity in decision-making. In Austria, the implementation of the Directives contributed to the harmonisation of project approval standards and inter-regional cooperation (Austrian NGO). More specifically, the Austrian Federal Ministry prepared binding standards on species conservation assessments in infrastructure projects[209]. According to the German nature protection authority, cooperation between the federal and regional governments in the area of nature conservation has increased, and the Nature Directives also enabled standardisation of monitoring systems and collection of comparable data across the country (Sachteleben and Behrens, 2010). This has had a positive impact on the effectiveness and efficiency of nature conservation by avoiding unnecessary conflict and duplication of effort, while also promoting problem solving and practical solutions.

It is clear that the implementation of the Nature Directives by Member States has led to increased stakeholder participation in Natura 2000 site designation, definition of site conservation measures and site management. Similarly, evidence shows that the Directives have led to new forms of governance between authorities and stakeholders, at different administrative levels or between public bodies in quasi federal or more decentralised countries.

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[206] http://ec.europa.eu/environment/nature/conservation/species/carnivores/coexistence_platform.htm, accessed 4.11.15

[207] http://www.birdlife.org/worldwide/cemex-birdlife-international-global-conservation-partnership-programme-2007-2017 and http://www.birdlife.org/europe-and-central-asia/partnership-heidelbergcement, accessed 4.11.15

[208] http://www.ecoports.com/, accessed 4.11.15

[209] (z.B. RVS 04.03.13).

5.4.3.3 Strict legal system and requirements for authorisation of activities. Enforcement

The establishment of a uniform legal protection system (rules and requirements under Article 6(2), (3) and (4) of the Habitats Directive) that is enforceable by the public concerned, has led to high numbers of cases brought to national or EU courts for issues of implementation of the Directives and, in particular, the authorisation of development projects (see section 3.2). While this has generated a higher level of compliance, and a wealth of case law clarifying the interpretation of the legislation, it has sometimes created risk-averse behaviours among permitting authorities at local level.

This is a clear, unintended effect of the implementation of the Nature Directives, where such risk-averse behaviour in decision-making at local level, particularly for granting permits, leads to requests for more information or to a rejection of authorisation for an activity on the basis of the precautionary principle. In some cases, the local authorities request additional detailed information for the assessment of the impacts under Article 6(3) of the Habitats Directive that is considered disproportionate by the operators. In other cases, the local authorities systematically prohibit systematically specific types of activities affecting a Natura 2000 site, even in cases where these could be carried out in line with site conservation objectives.

Evidence of those cases has been highlighted by the private sector (e.g. UEPG, Europeche, Euromines) and also by authorities in some Member States (e.g. Dutch nature protection authority, the UK other relevant authorities, France). EU level organisations from different private sectors stated that, often, the required levels of evidence to prove the absence of risk of damage beyond doubt, do not exist, and the activities are not authorised even after three or four years of permit procedures. This has increased costs (due to consideration of alternatives) and, as pointed out by some stakeholders (e.g. Bulgarian nature protection authority), affects investments. (see section 6.1 for more discussion). While the evidence provided is based on one-off examples which do not allow for an accurate estimation of the extent of the problem, decision-making processes on permits for development activities or projects affecting Natura 2000 areas under Article 6(3) of the Habitats Directive seem to be in some cases too restrictive. In the example of Falmouth Docks, UK, the Falmouth Harbour Commissioners considered the overly precautionary approach taken by the authorities unnecessary under the EU Guidance document (European Commission, 2011b).

The Commission guidance provides for a case-by-case analysis of the risk of individual projects on species and habitats and does not consider systematic prohibition necessary (e.g. specific Guidance documents on non-energy mineral extraction (European Commission, 2010a), wind energy (European Commission, 2010b)) as a development may be implemented in line with the sustainable development principles, balancing environmental benefits and societal and economic requirements (European Commission, 2011b). The positive impact of the Commission's guidance on the issue is acknowledged by many EU level organisations (e.g. CEMBUREAU, Euromines, ESPO). However, the lack of awareness or broad distribution of the guidance at local level, the capacity limitations of local authorities and the non-mandatory nature of the guidance limits its impact.

While many Member States, and, in the case of some federal states, their regions (e.g. Spanish autonomous region of Castilla y Leon) are following the Commission guidance, their discretionary power to decide on the best way to achieve the Directives' objectives enables Member States to take a different approach and impose restrictions on certain types of activities because of a precautionary approach. Specific local considerations are often invoked, for example, the Spanish autonomous region of Galicia prohibits open pit mining exploitations in Natura 2000 areas and, in Murcia, any building development in the territory of a littoral Natura 2000 site is forbidden, given the existing high pressure on these regions[210]. The European Court of Justice (CJEU) has reiterated Member States'

[210] Decree 37/2014 of 27 March.

discretion to adopt more stringent measures, therefore introduction of statutory prohibitions on specific activities is not a breach of EU law provided it does not impact the functioning of the internal market[211].

Several reasons are put forward to explain the preference for an overly precautionary approach over the Commission guidance. The lack of reliable data (Snethlage et al, 2012), lack of resources, and insufficient training and expertise of planning or permitting authorities (see section 5.3) is argued in some cases. In other cases, stakeholders claim that the relevant Commission Guidance documents are not properly distributed or/and translated and, therefore, the local level authorities are not sufficiently informed. The non-mandatory nature of the Commission guidance is also invoked by several sectors, who claim the need for the use of other instruments, such as implementing acts, in specific cases. Others pointed to the need for more detailed sectoral guidance to deal with management problems on the ground.

5.4.3.4 Restrictions or changes with respect to property rights

Member States' discretionary power to choose their methods of implementing the Directives to ensure that they deliver their objectives triggers some unintended changes for restrictions on property rights, linked to site designation or site management. These indirect effects were not foreseen by the Directives, but have been viewed by stakeholders as significant in the past. Therefore, this issue meets the judgement criteria for this question.

In certain countries, the authorities considered that the adoption of management plans or appropriate conservation measures could only be ensured if the land was state-owned or managed by public interest associations (Dodd et al, 2010). This would lead to expropriations or similar processes for changing the ownership of the land as part of the Natura 2000 site designation process.

Restrictions on property rights (e.g. expropriations) for site designation to establish the Natura 2000 network are not required by the Directives, but relate to national decisions in the implementation of the Directives. This is confirmed in a five-country study on the implementation of the Habitats Directive (Slovenia, Czech Republic, the Netherlands, France and Sweden) which refers to private landowners' opposition to the implementation of the Nature 2000 on the ground that their property rights would not be respected in the process of Natura 2000 site designation, management planning and site management (Bouwma et al, 2010).

The first proposals of Natura 2000 sites in several Member States (e.g. France, Finland, Belgium and Spain) generated strong opposition from landowners and rural communities, who feared changes or restrictions to their property rights. Member States developed information, engaged in awareness-raising actions and adopted measures to compensate landowners and managers for the economic impact that such restrictions could cause. The level of opposition has been lower in those countries where implementation choices were based on stakeholders' involvement and information campaigns.

In France, landowners and rural actors initially opposed the selection and designation process of Natura 2000 sites due to the lack of understanding about the regulation of activities within those sites (FACE). However, these issues were subsequently resolved through integrated implementation strategies. Holders of real and personal rights to the land included in the Natura 2000 site may sign a Natura 2000 contract or the Natura 2000 charter with the administrative authority. The contracts are discussed between the local representatives of the authorities and the stakeholders in order to define the management measures to be carried out, the financing or state aid required and the services

[211] C-2/10 Azienda Agro-Zootecnica Franchini et al, [2011] ECR I-06561 p. 39-75.

to be provided in return by the beneficiary. Signing up to the charter may lead to land tax exemptions for which persons or organisations may qualify[212].

In Finland, complaints against site designation were submitted from private owners whose land was proposed as part of Natura 2000. However those issues were subsequently resolved (Dodd et al, 2010) by greater understanding of the implications of the Directives. NGOs in Slovakia reported that the resistance of landowners to their sites being included in the Natura 2000 network was resolved once they received full information on the issue. The nature protection authority of one of the Belgian regions (Wallonia) referred to stakeholders' opposition to changes in their capacity to exercise their property rights due to the imposition of specific nature conservation measures. However, over time the opposition moved from being sectoral (e.g. agriculture) to more individual, following the public consultation which took place during the definition of the site management measures and implementation using compensatory allowances and fiscal benefits.

According to EU level associations from the forestry sector (EUSTAFOR), the compensation has not always been sufficient and was, in some cases, completely non-existent. This problem has also been raised during the National Missions, where access to compensatory funds by the forestry sector seems to be lower than access by farmers (see sections 6.2 and 8.2).

5.4.3.5 Species protection measures beyond the objective

Another unintended effect which goes beyond the stated objectives of the Directive and stakeholder expectations concerns implementation of protection measures for targeted species that are widespread in a country, or whose conservation status has changed. The Directives establish clear species protection rules, they offer adequate flexibility to deal with the challenges presented, although these are not always efficiently applied or considered.

Some targeted species that must be protected in the EU, according to the Directives' objectives, are widespread and common in some Member States, with stakeholders believing that there is no need for their strict protection in those areas. Examples include Great Crested Newts in the UK and Denmark (UK nature protection authority and Copa-Cogeca – Denmark) and European Flying Squirrel in Finland (Copa-Cogeca – Finland, Finish private sector representative).

A similar argument has been raised by some stakeholders from economic sectors in relation to targeted species which have recovered and became widespread due to the effectiveness of the Nature Directives generating unintended impact on certain economic activities. Perhaps the best example is the Great Cormorant, which may cause damage to fish stock in certain areas [213][214] (Cowx, 2013). This was raised several times during focus groups and the National Missions. The Pygmy Cormorant is also of concern for fish stock according to some EU level organisations (e.g. FEAP).

In addition to Cormorants, large carnivores also have the potential to cause damage to livestock and crops and to compete with hunters for game species (Linnell et al, 2008). There is documented evidence of damage caused by growing populations of certain large carnivores in areas in Sweden (Frank et al, 2015).

However, the Directives do offer adequate flexibility to take into account socio-economic considerations while respecting the conservation objectives of the species within or out-

[212] National description of the implementation process related to site designation and management approaches (Articles 6(1) and 6(2) of the Habitats Directive), L'Atellier, technique des espaces naturels, available at: http://www.eurosite.org/files/natura_FRdescription_en.doc, accessed 3.11.15
[213] European Parliament resolution of 4 December 2008 on the adoption of a European Cormorant Management Plan to minimise the increasing impact of cormorants on fish stocks, fishing and aquaculture (2008/2177(INI)), accessed 16.12.15
[214] Position Paper prepared by the 2nd International Carp Conference, September 2013, Wroclaw, Poland.

side Natura 2000 sites. Potential conflicts can be resolved when setting the conservation objectives and designing conservation measures or management plans of the Natura 2000 sites (e.g. Belgian authorities), through the implementation of sustainable management practices in agriculture and forestry (Danish nature authorities), the granting of derogations under the Directives, or the establishment of systems for early planning of projects. See sections 5.3 and 7.2 for a discussion of management solutions.

5.4.3.6 Changes or impacts on non-targeted species and habitats outside the Natura 2000 network

The clear legal protection system introduced by the Nature Directives has positively influenced non-target species and habitats or sites outside the Natura 2000 Network, promoting wider landscape or species protection (e.g. German and Belgian NGOs, IUCN). The protection of non-target species or habitats is an indirect effect of the Directives which does not correspond to the specific objectives as set out in the Nature Directives' intervention logic (see section 2.3 of the report). The above mentioned stakeholders considered this an unintended indirect change/effect. Therefore, the judgement criteria for this question are met.

The broad scope of the Birds Directive aims at covering all bird species, whereas the scope of the Habitats Directive is limited to the habitats or species listed in the Annexes due to their needs for site protection or other conservation measures. However, it is demonstrated that the Nature Directives have a broader conservation impact, reaching non-targeted species or habitats outside of the Natura 2000 network (see discussion concerning question S.1, section 5.1.3.1.10 and Annex 3.

In some cases, Member States extended the protection under the Nature Directives to other species and areas. For example, in France, the Directives' protection rules have been extended to the Great Grey Shrike (WWF). In 2014/2015 England extended the application of the Directives' requirements for the management of fishing activities in Natura 2000 sites to English Marine Conservation Zones, marine areas outside Natura 2000 (UK NGO). In Greece, EU funded projects, such as CRETAPLANT and FOROPENFORESTS, within Natura 2000 sites, contributed to the protection of species and habitats not covered by the Nature Directives (Greek NGO).

According to some EU level organisations (e.g. BirdLife) the Nature Directives have also had an impact outside the EU, leading to improved governance and conservation in many non-EU and non-accession countries. This has been primarily through the Nature Directives' impact on the Bern Convention, but also through specific initiatives, such as the sustainable hunting in the Middle East initiative[215].

5.4.4 Key findings

According to the judgment criteria used for the analysis of this question and guiding the consultation and evidence examined, the following key findings can be identified:

- The Directives have brought about unintended changes not required in the legislation but which have impacted its effectiveness. Some of the changes identified are discussed in other evaluation questions (e.g. climate change in sections 7.1 and 8.1.1, level playing field and internal market in question C.6, or administrative burden and ecosystem services in section 6.1) and were not described in this section.
- The positive change most frequently mentioned by stakeholders is the increased public awareness of nature, leading to behavioural changes. Taking a proactive

[215] http://www.birdlife.org/datazone/sowb/casestudy/35, accessed 4.11.15

approach to engage with the public has increased public understanding and helped to avoid public objections (e.g. France, Finland). It has also enabled more effective implementation of the Directives, with innovative solutions aiming to strike balance between socio-economic and conservation objectives.

- The largely unforeseen effect triggered by the Directives' site protection system is increased stakeholder participation and involvement in the definition of site conservation measures and the management of Natura 2000 sites. This was highlighted by stakeholders and by the specialised literature. While this trend has been confirmed in those countries where public authorities have facilitated participation, in others it remains a problem, with conflict created as a result of failure to meet stakeholder expectations. Similarly, while stakeholders in some Member States claimed that participation in the management process does not exist in practice, the Directives' indirect effect provide for an appropriate platform enabling stakeholder or the public to request participation, even if it is not a formal obligation or stated objective of the legislation.
- Literature, stakeholder contributions and EU Guidance documents all recognise that the Nature Directives have promoted innovative approaches to nature conservation based on integrated management stimulating sustainable development. The innovative concept of Natura 2000 is based on a more flexible system of protection whereby socio-economic activities are not automatically banned and economic factors are considered, provided they respect the site conservation objectives. This concept has had a positive impact on socio-economic activities in particular for sectors such as tourism and sustainable farming or fishing. It has generated new governance approaches, such as the 2014 ministerial decision establishing a voluntary framework on Natura 2000 and tourism in Spain.
- The establishment of a uniform legal protection system (rules and requirements under Article 6(2), 6(3) and 6(4) of the Habitats Directive) that is enforceable by the public concerned, has led to high numbers of cases brought to national or EU courts. While this has generated a higher level of compliance and a wealth of case law clarifying the interpretation of the legislation, it has sometimes created risk-averse behaviours among permitting authorities at local level. This has led to unintended effects where local authorities prohibit development for specific types of activities affecting a Natura 2000 site (even in cases where these could be carried out in line with site conservation objectives) or where they request disproportionate requirements for their authorisation. Such negative effects have been highlighted by the private sector and nature authorities in several Member States. While the Commission sectoral guidelines may allow the development of socio-economic activities (i.e. renewable energy, extractive industries) under certain conditions, the CJEU has reiterated Member States' discretion to adopt more stringent measures provided they respect internal market rules[216].
- Changes or restrictions on property rights (from expropriations to imposed management measures) for sites designated as part of the Natura 2000 network have been raised as issues by certain stakeholders. Such changes or restrictions stem from national choices on the implementation of the Directives, or lack of information on the impacts of Natura 2000, and are not required under the Directives. The first proposal of Natura 2000 sites generated strong opposition from landowners in several countries, who feared an impact on their property rights. However, those issues were subsequently resolved through a greater understanding of the implications of the Directives.

[216] C-2/10 Azienda Agro-Zootecnica Franchini et al, [2011] ECR I-06561 p. 39-75.

6 Evaluation and analysis of efficiency questions

Efficiency is essentially a comparison between inputs used in a certain activity and the outputs produced. The central question asked here is whether the costs involved in the implementation of the EU Nature Directives are reasonable in relation to the objectives pursued and the results achieved (benefits). Both 'costs' and 'benefits' can be monetary and/or non-monetary.

Ideally, costs and benefits should be quantified in monetary terms in order to facilitate comparison. However, gaps in the evidence mean that this is often not possible. Though some studies have quantified the costs and benefits of implementation, these do not cover all of the relevant costs and benefits for all areas and actions. Nor are cost and benefit estimates usually directly comparable, since different studies often vary in their scope, focus and definitions, or apply to different geographical scales or time periods. It is often necessary, therefore, to complement quantitative evidence with more qualitative judgements about the balance of costs and benefits, examining whether there are examples of disproportionate or unreasonable costs or administrative burdens, as well as examples of cost-effective implementation.

The model of intervention logic set out in section 2.3 recognises that implementation of the Directives requires significant inputs in pursuit of their objectives. These inputs are the financial and human resources employed in protection and management of sites and species. The efficiency questions are concerned with the relationship between the inputs used (and costs incurred) and the results (or benefits) achieved. They explore the overall balance between costs and benefits, and whether the Directives add to the wellbeing of society overall. They also examine the costs and cost effectiveness of particular activities undertaken to implement the Directives, in order to examine whether the objectives could be met at lower cost.

6.1 Y.1 - What are their costs and benefits (monetary and non-monetary)?

6.1.1 Interpretation and approach

Implementation of the Directives gives rise to a range of costs and benefits to the EU economy and society. Costs include the direct costs of designating, protecting and managing Natura 2000 sites, the opportunity costs of habitat and species management (including the associated restrictions to development and the outputs of land use), the damage costs of protecting species (e.g. large carnivores) and associated compensation payments, and the administrative costs of compliance with the site and species protection rules within the Directives. Benefits include the protection and improvement of the status of habitats and species, safeguarding and enhancing the delivery of ecosystem services (with related benefits to wellbeing), and benefits for local economies (e.g. job and income creation and tourism benefits).

The intervention logic set out in section 2.3 recognises that the Directives require human, financial and institutional resources (inputs) in order to achieve their objectives. Analysis of costs and benefits needs to examine the relationship between the inputs used in implementing the Directives and the results and impacts achieved. The costs of implementation include not only these direct inputs but also costs resulting from any indirect or unintended effects of implementation, such as the opportunity costs of restrictions on economic activity and the damage costs resulting from protected species. The benefits assessment needs to take into account not only the benefits for habitat and species conservation of meeting the general and specific objectives of the Directives, but also the wider benefits that meeting these objectives deliver for society and the economy, through the provision of ecosystem services.

Some costs and benefits can be relatively easily monetised, such as the financial costs of management of Natura 2000 sites and the benefits to the tourism sector. However, a comprehensive assessment requires wider analysis and quantification of opportunity costs, non-monetised administrative costs, and benefits for biodiversity and untraded ecosystem services.

The main judgement criteria used to answer this question were:

- The type, nature, extent, significance and value of costs and benefits.
- The type and number of stakeholders affected, both positively and negatively.

Within the EU the costs of implementation are shared with stakeholders such as developers and other businesses undertaking or proposing activities with potential impacts on protected sites and species, landowners and land managers in Natura 2000 areas, and public authorities responsible for implementation of the Directives at national, regional and local level. Implementation also delivers a range of public and private benefits, both for particular businesses (e.g. water utilities benefiting from ecosystem services) and the public at large (e.g. through recreational and amenity benefits). Often, those bearing the costs differ from those who benefit.

Difficulties arise in distinguishing between the effects of the Directives and those of other nature conservation laws and designations in the Member States, given that most countries have national policies pre-dating and complementing the Directives. While much of the evidence on costs relates to the costs of measures required to implement the Directives, most evidence on benefits relates to the overall benefits of the sites and species protected, making direct comparisons of costs and benefits problematic. (see section 6.6 for a consideration of the costs of non-implementation of the Directives).

6.1.2 Main sources of evidence

Studies have ranged from EU level to site-specific analyses, including major EU wide assessments of the costs and benefits of delivering the Natura 2000 network, as well as those related to specific processes. Some national studies have examined the costs and benefits of the Directives in individual Member States (e.g. the Netherlands, the UK), and numerous assessments have been made for particular sites and species. Responses to the evidence gathering questionnaire and gathered during the national missions yielded examples of the costs and benefits associated with the Directives, although these varied in their robustness and degree of quantification.

Online public consultation invited stakeholders and members of the public to comment on the significance of a range of costs and benefits of the Directives.

Together, these sources provide considerable evidence for addressing aspects of this question. Given the wide range of costs and benefits, activities involved and geographical scales, however, the evidence base is far from complete and there are significant gaps. For example, evidence is stronger for Natura 2000 sites than for species protection measures, for financial costs compared to opportunity costs, for benefits of tourism compared to water regulation, and for North-Western compared to Eastern Europe. Few studies focus on the additional costs and benefits of the Directives themselves, with most assessing the broader costs and benefits of the habitats, sites and species covered by the Directives. The studies available vary in their methods and timing, making comparisons or collation of assessments difficult.

While this question presents overall evidence of the costs and benefits of the Directives, other questions address the differences in costs between Member States and the reasons for such differences (see section 6.3), the relationship of benefits to costs and whether these are disproportionate (see section 6.4), examples of cost effective implementation (see section 6.5), the costs of non-implementation (see section 6.6) and the scale and need for the administrative burdens of the Directives (see section 6.7).

6.1.3 Analysis of the question according to available evidence

6.1.3.1 Costs of the Nature Directives

6.1.3.1.1 Types of Costs

The Directives impose costs both directly (e.g. as a result of requirements to invest resources in the designation and management of sites) and indirectly (e.g. as a consequence of the measures needed to comply with rules for site and species protection).

These costs include both the compliance costs of the legislation and any opportunity costs resulting from missed or delayed opportunities for development or other activities. Compliance costs can be further divided into administrative costs and costs of habitat and species management. Examples of each of these types of cost are set out in Table 16.

Administrative costs refer to the costs of providing information in its broadest sense (including costs of permitting, reporting, consultation and assessment). When considering administrative costs, an important distinction must be made between information that would be collected by businesses and citizens even in the absence of the legislation, and information that would not be collected without the legal provisions. The costs induced by the latter are called administrative burdens.

All such costs include both:

- **Monetary costs –** in terms of investments and recurrent expenditures on equipment, materials, wages, fees and other goods and services.
- **Non-monetary costs** – including administrative time inputs, delays and missed opportunities.

A typology of costs is presented below. This was developed for the evidence gathering questionnaire and has been refined to reflect the answers received.

Table 16 Typology of costs resulting from the Nature Directives

Type of costs	Examples
Habitat and species management costs	**Investment costs:** • Land purchase. • Compensation for development rights. • Infrastructure for the improvement/restoration of habitats and species. • Other infrastructure, e.g. for public access, interpretation works, observatories, etc. **Recurrent costs - habitat and species management and monitoring**: • Conservation management measures – maintenance and improvement of Favourable Conservation Status for habitats and species. • Implementation of management schemes and agreements with owners and managers of land or water. • Annual compensation payments. • Monitoring and surveillance. • Maintenance of infrastructure for public access, interpretation etc. • Risk management (fire prevention and control, flooding etc.).
Administrative costs	**Public administrative costs:** • Site designation, including scientific studies, administration, consultation etc. • Establishing and maintaining management bodies. • Preparation and review of management plans. • Public communication and consultation. • Spatial planning. • Permitting and development controls. • Research, surveys and monitoring. • Investigations and enforcement. **Private administrative costs and burdens:** • Time and fees involved in applications and permitting in Natura 2000 areas, including conducting Appropriate Assessment (AA) and associated surveys, studies and evidence gathering. • Time and fees involved in compliance with species protection measures, including applications for permits and derogations. • Delays and uncertainties relating to permitting processes.
Opportunity costs	• Development opportunities foregone as a result of site and species protection, including any potential effects on output and employment. • Delays in development resulting from site and species protection and any potential effects on output and employment. • Restrictions on economic output (e.g. agricultural or forestry production) resulting from species and site protection measures. • Restrictions on other activities (e.g. recreation, hunting) resulting from species and site protection measures.
Damage costs	• Costs of damage caused by protected species, including large carnivores and fish-eating birds. • Damage costs may be reflected in compensation payments made by authorities, and included under species management costs above.

6.1.3.1.2 Habitat and Species Management Costs

EU level studies

Gantioler et al (2010) reported on the costs of implementing the Natura 2000 network, based on a survey of Member States. Building on the results of a questionnaire completed by 25 Member States, it was estimated that the annual costs of implementation would amount to EUR 5.8bn per year for the then EU-27. Although guidance was provided to the authorities completing the questionnaire, the responses reflected best estimates by the Member State authorities. The report made clear that the estimates were affected by variations in assessment methods, assumptions and levels of ambition between countries, and therefore needed to be treated cautiously. Most Member States gave point estimates rather than a range of costs.

In absolute terms, the largest cost estimate was for Spain (EUR 1.6bn p.a.) and the lowest for Malta (EUR 20m p.a.). The EUR 5.8bn value was deemed an underestimate, as most countries focused on historic and/or budgeted expenditures, with few providing information on future needs. For instance, the cost of achieving Favourable Conservation Status was only captured to a limited extent. In addition, the cost of implementing marine Natura 2000 sites was under-represented. The overall costs were not expected to decline in the future, though a gradual shift from one-off investments to regular management costs was expected to occur. In most Member States the network is seen as delivering long-term objectives which will require ongoing expenditure on site protection and management.

It was further estimated that:

- 98% of these costs relate to already designated sites, with only 2% relating to new sites yet to be designated.
- 33% of the costs are one-off investments (e.g. investment in infrastructure and land purchase) and 67% are recurrent annual costs (e.g. habitat management and planning).

Averaged over the terrestrial land area of the network, the total costs amount to EUR 63 per hectare per year. However, there was considerable variation around this average (see section 6.3), and it was relatively low compared to previous estimates. The authors commented that a key reason for the relatively low estimates made by the Member States was that many appeared to be based on the existing resources available for the network rather than estimates of the cost of completing, restoring and managing the network without resource constraints.

National level evidence

Although based on a survey undertaken between 2008 and 2010, so now more than five years old, the Gantioler et al study (2010) represents the best overall estimate of the costs of implementing the Natura 2000 network in the EU as a whole to 2010.

Since that study, most Member States have compiled Prioritised Action Frameworks (PAFs), which are designed to better define the funding needs and priorities for Natura 2000 at national and regional level, and so facilitate their integration into operational programmes for the different EU funding instruments. The PAFs – which are one-off documents prepared for the first time to inform expenditure programmes for the 2014-2020 period - have provided more refined and updated estimates for some Member States (see below).

Responses from Member State authorities and stakeholders provided much evidence of the costs of implementation of the Directives. 96 respondents to the evidence gathering questionnaire answered question Y.1 on the costs and benefits of the Directives, of which 79 provided evidence of the costs of implementation, 56 of these comprising quantitative evidence.

The box below summarises evidence at Member State level on the costs of implementing the Natura 2000 network. These estimates are diverse in nature, making direct comparisons difficult.

Box 9 National estimates of the costs of implementing Natura 2000

Belgium: In Flanders, the estimated overall costs of full implementation of Natura 2000 for the Agency for Nature and Forests - including administration, management and restoration measures, mitigation of environment pressures, infrastructure for access, surveillance and monitoring, impact assessment, communication and capacity building - come to between EUR 85.4m and 97.3m per year. These estimates compare to an annual budget for the Agency of approximately EUR 60m, but do not include costs incurred by other authorities or stakeholders. In Wallonia, implementation costs are estimated at EUR 14.5m per year, partly co-financed by the EC.

Bulgaria: Costs of Natura 2000 for Bulgaria are estimated at EUR 39.6/ha. These expenditures benefit the Bulgarian economy, providing income for farmers, and benefitting small business in infrastructure development, scientific research and conservation work.

Cyprus: The PAF estimates the cost of implementing Natura 2000 at EUR 255m for the seven-year period 2014-2020. This includes staff costs, scientific studies, infrastructure for improvement and restoration of sites, habitat and species mapping and monitoring, as well as management planning. It includes an amount for land purchase but notes that this does not represent the current situation of prices in the country, and that the acquisition of private land is not always a necessary measure to achieve efficient management of a Natura 2000 site. The questionnaire response by BirdLife Cyprus argues that this figure is an overestimate, and suggests that a total of EUR 98.5m would be more realistic for the seven-year period. BirdLife Cyprus argues that the projected costs of land purchase are overstated. Resource allocation may be further limited by the capacity of the authorities to absorb and spend the financial resources available.

Estonia: According to the PAF, the financial needs for management of Natura 2000 in Estonia amount to EUR 405m between 2014 and 2020. The estimate includes studies, inventories, management planning, habitat restoration, management and monitoring, support payments, investments and land purchase, but excludes administration costs.

Finland: The establishment of the Natura 2000 network incurred costs of around EUR 580m in land acquisition and compensations during the period in which the network was developed. However, most of these would have been incurred through national protection programmes in place before EU membership. Natura 2000 is likely to have increased overall costs by just over EUR 100m . The necessary costs for management, inventories and other ongoing actions are somewhat smaller in the boreal region compared to other parts of Europe, due to the main focus on natural habitats which require less management than man-made habitats. In the PAF, costs of EUR 313m have been estimated for the2014-2020 period.

Germany: The costs for implementing the Natura 2000 network are estimated in the PAF to be EUR 627m per year for the 2014-2020 period. Given the overall Natura 2000 area of 8,083,224 ha in 2014, including a terrestrial area of 5,503,033 ha, this amounts to annual costs of EUR 77 - 114 per hectare. Some of these costs meet national requirements and would arise without the Nature Directives.

Ireland: The potential costs of implementing the network were estimated in Gantioler et al (2010) at approximately EUR 185m per annum. In practice, allocations are far smaller and nationally-funded programmes had budgets reduced incrementally between 2008 and 2014. For example, Natura 2000 expenditure via the Department of Agriculture Food and the Marine under Ireland's Rural Development Programme (RDP) 2007-13 was approximately EUR 95m, or about EUR 13.6m per annum. In addition, in 2012, the Department of Arts, Heritage and the Gaeltacht spent EUR 5.4m on agri-environment measures and EUR 3.9m on science and species protection programmes. The requirements for baseline studies and monitoring are substantial – especially for marine areas - and not readily met from EU funds. Other costs included EUR 3.4m for compensation and relocation of turf cutters in raised bogs and EUR 1.2m for scientific studies and management/restoration planning on raised bogs.

Latvia: It has been estimated that the total costs of management of the Natura 2000 network in Latvia would be EUR 50/ha/year.

Netherlands: Leneman et al (2009) estimated the costs of maintaining or restoring the Natura 2000 network to a favourable status in the Netherlands. The total funding needed for the 2007-2020 period was estimated to be in the range EUR 1.9 - 2.3bn. Approximately 20% of these costs target the management of Natura 2000 areas (ongoing habitat management and restoration), with the remainder mainly aimed at achieving the required environmental quality for a favourable status of Natura 2000 sites (control of ammonia emissions and improving the quality of freshwater and coastal waters). During the national mission to the Netherlands, the authorities noted that the greater emphasis on management to achieve Favourable Conservation Status has raised the costs of Natura 2000 compared to the National Ecological Network.

Portugal: Managing the mainland Natura 2000 network is estimated to cost EUR 135m per annum, excluding administration salaries.

Romania: The PAF estimates the cost for the Natura 2000 network at a minimum of EUR 413m, or EUR 183/ha/year for the current programming period. The costs of an optimal level of management would be EUR 504m (EUR 223/ha/year).

Slovakia: The PAF estimates financial needs for 2014-2020 at over EUR 542m, including purchase of land and compensation of land owners. Resources allocated (before co-financing) are far less than this and include EUR 25.5 m from the Structural Funds, almost EUR 19m from LIFE+ and EUR 3.8m from Swiss and Norwegian financial mechanisms. These figures do not include contributions from the RDP or national resources. Given that Slovakia acceded to the EU with relatively well-preserved biodiversity, the costs of maintenance are relatively low.

Sources: Evidence gathering questionnaires submitted by Agency for Nature and Forests, Government of Flanders, Public Service of Wallonia, Natuurpunt vzw and Natagora (Belgium), WWF Bulgaria, Department of Environment (Cyprus), BirdLife Cyprus, Ministry of the Environment (Estonia), Ministry of the Environment (Finland), Federal Ministry for the Environment (Germany), National Parks and Wildlife Service (Ireland), Vogelbeschirming Nederland, Latvian Fund for Nature, SPEA (Portugal), Ministry of Environment, Waters and Forests (Romania), Federația Coaliția Natura 2000 Romania, Ministry of the Environment of the Slovak Republic; National Missions.

The evidence submitted supports many of the earlier conclusions of the Gantioler et al report (2010), notably that:

- The ongoing costs of land management account for a large proportion of implementation costs.
- In many countries, the costs of Natura 2000 are difficult to separate from those of national conservation measures, with only a proportion of relevant expenditures attributable to the Directives.
- Management strategies (such as the decision whether or not to purchase land) can have a significant influence on cost estimates.
- In many parts of the EU, there remain significant gaps between (higher) estimates of the costs of achieving Favourable Conservation Status and the (lower) expenditures currently being allocated.

While estimates from the PAFs do not provide a comprehensive picture of the costs of implementing Natura 2000, they are generally similar in magnitude to the estimates found by the Gantioler et al study (2010). However, they suggest that the Gantioler et al estimates may have been conservative for some Member States (e.g. Slovakia), but overestimates for others (e.g. Cyprus). Overall, the questionnaire responses are consistent with the scale of the average cost estimates made in the Gantioler et al study.

Box 10 Costs of implementing the Nature Directives in the Czech Republic

The questionnaire submitted by the Ministry of the Environment of the Czech Republic estimated the costs of various activities involved in implementing the Directives, including species conservation measures, as well as Natura 2000. The figures refer to various actual and planned costs for different years and include:

Personnel costs of nature conservation authorities – EUR 2.9m/year to employ 155 staff.

Monitoring and Surveillance – EUR 0.56m one-off costs and EUR 1.44m/year (including monitoring under Article 11 of the Habitats Directive, Article 12 of the Birds Directive, surveillance and assessment of Natura 2000 sites, data management).

Legislative based procedures – EUR 31.3m one-off costs and EUR 264,500/year, including designation of Natura 2000 sites and management planning.

Site conservation measures - Regular conservation measures at EUR 41.1m/year for SACs and 7.6m/year for SPAs; One-off conservation measures at EUR 16.3m/year for SACs and EUR 2.2m/year for SPAs.

Action plans – EUR 0.8m – 1.12m/year.

Compensation payments for management restrictions and damage caused by species – EUR 1.2m/year.

Training and public awareness – EUR 0.32m/year for training for conservationists, stakeholder negotiation, new biogeographical process and public awareness raising.

Monetary compensations for restrictions in forest and agricultural management in Natura 2000 sites and purchase of land into state possession – land purchase costs of EUR 0.23m in 2013 and 0.85m in 2014; compensation of EUR 0.1m per year for restrictions on management in Natura 2000 sites.

The figures demonstrate that the annual management costs of SACs and SPAs represent a large proportion of the overall total.

Source: Evidence gathering questionnaire submitted by the Ministry of the Environment of the Czech Republic.

The Maltese authorities provided data on the costs of the different administrative actions required to support implementation of each Directive.

Box 11 Costs of public administration of the Nature Directives in Malta

BIRDS DIRECTIVE

The main cost factors associated with the implementation of the Birds Directive in Malta are related to enforcement, governance and research. In monetary terms, these costs can be approximately quantified as:

- Policy and governance processes: circa EUR 0.5m per annum.
- Field enforcement: circa EUR 0.8m per annum.
- Research: circa EUR 0.5m per annum.

The bulk of these costs are recovered through relevant regulatory processes (e.g. cost of hunting licences, fines imposed for violations, etc.). EU programmes such as LIFE+ also provide support for certain activities, such as species re-introduction programmes, scientific research, education and conservation action on the ground.

HABITATS DIRECTIVE

The main costs associated with the implementation of the Habitats Directive in Malta are related to policy and governance, research, funding and management costs:

- Policy & governance – circa EUR 0.8m per annum.
- Research and management costs: Various projects/studies totalling in the region of EUR 10m since accession (some of which were co-financed e.g. under LIFE+ and MedPAN).
- Increase in biodiversity awareness: EUR 30,000 per year by the Malta Environment and Planning Authority and circa EUR 400,000 for e-actions in connection with two LIFE+ projects to be considered between 2012 and 2017.

Source: Questionnaire submitted by Malta Environment and Planning Authority (MEPA) and Wild Birds Regulations Unit (WBRU).

6.1.3.1.3 Administrative Burdens

See section 6.7

6.1.3.1.4 Opportunity Costs

EU level studies

Kaphengst et al (2011), in a study of the opportunity costs of biodiversity conservation in the EU, noted that the opportunity costs of the Natura 2000 network include:

- **Foregone development opportunities** – the protection of sites may prevent their use for built development, including housing, industrial, commercial, energy, tourism and infrastructure developments. This may reduce economic output and/or lead to a wider loss of social benefits.
- **Foregone opportunities for land use change** – Natura 2000 status reduces opportunities to 'improve' or convert land for intensive agriculture and forestry, and may therefore reduce the output of land management.
- **Foregone output through constraints on land management/land use practices** – management of sites may reduce output by constraining farming and forestry practices (e.g. through reduced stocking rates, chemical application, timber harvesting etc.).

These opportunity costs are reflected in the (public sector) financial costs of the network to some extent. For example:

- Purchase of land is most likely to take place in situations where there are conflicting pressures and development options. The price should reflect the returns that can be expected from that land in alternative uses.
- Payment of compensation for foregone development rights or ongoing management constraints is designed to offset the opportunity costs of managing the land for nature. Provided that compensation payments reflect the income foregone from not changing the use of the site, they should be a good reflection of opportunity costs.
- Management agreements normally involve payments to landowners/managers, which are likely to reflect the costs incurred and income foregone from the prescribed management practices. The income foregone element should reflect the opportunity costs of alternative land management practices. Expenditure on management agreements is not estimated separately but forms an important element of the recurrent cost of habitat management.

On the other hand, where the Directives impose restrictions for which no compensation is paid, landowners and businesses incur opportunity costs which are not reflected in public expenditure.

The authors assessed the incidence of opportunity costs within the different categories of the costs of implementation of the Natura 2000 network estimated by Gantioler et al (2010), based on estimates of opportunity costs within land purchases, compensation payments and management agreements. On this basis they estimated that, of the annual estimated financial costs of EUR 5.8bn for implementing the Natura 2000 network, compensation for opportunity costs amounts to EUR 2.1bn (or 36%). This comprises land purchase costs of EUR 506m, one off compensation payments of EUR 130m, annual compensation payments of EUR 134m and estimated income foregone associated with habitat management of EUR 1300m.

Kaphengst et al found that the true extent of opportunity costs for which no compensation is paid is unknown. However, examples are given where Natura 2000 has prevented development (see Box 12). The authors argued that in most of these examples protection of the site is likely to have displaced development to more appropriate locations. Overall, it is considered likely that the net reduction in economic development at EU level as a result of Natura 2000 is likely to be small, although the authors argue that further assessment would be desirable.

Box 12 Examples of conflicts between Natura 2000 and development

Kaphengst et al (2011) identify a number of cases where developments did not take place because conflicts with Natura 2000 could not be resolved:

- The Commission delivered a negative opinion on the development of a new industrial and commercial area near Siegen in North-Rhine Westphalia, Germany, due to unjustified adverse effects of the project on one of the 29 proposed Natura 2000 sites nearby.
- In Scotland, plans by Lewis Wind power for a 181-turbine wind farm at Barvas Moor on the Isle of Lewis, Scotland were refused in 2008, due to the serious impact the development would have on the Lewis Peatlands Special Protection Area. A smaller windfarm development was later permitted at another site on the island.
- Proposed tourism developments have been rejected at a variety of sites including Zakopane (Poland), Beskidy (Poland), Mount Olympus (Greece), Wörschacher Moos (Austria), and Geuldal (Netherlands).
- Fish farming and urban/industrial expansion have been restricted on the Santona marshes (Spain).
- Cockle fisheries have been banned in the Waddensea (Netherlands), although conflicts with mussel fisheries have been resolved through an agreement to change fishing techniques.

The Ecosystems Ltd study on Article 6(3) (Sundseth and Roth, 2013) also noted that the rules governing developments affecting Natura 2000 sites can deter development. It found that, because of the time-consuming nature of the AA procedure and the uncertainty of the outcome, some companies avoid proposing projects in or near Natura 2000 sites unless they can be sure of a reasonable chance of success. The report suggested that while this may be manageable for some industry sectors where the resources they wish to exploit are relatively widespread, it can be much more of a problem for industries working with rare resources (such as metal ores) with a finite number of locations available, or where the company may have acquired extraction rights before the site became Natura 2000.

The Ecosystems report considered the extent to which the Directives block development by examining how many developments are proposed affecting Natura 2000 sites and how many of those are screened out. They noted that data for this are largely lacking, but found some evidence at national level (Box 10). This indicates that, on the whole, only a very small proportion of development proposals are subject to a full AA, and, in most cases, these proposals are allowed to proceed.

Box 13 Review of national statistics on developments and Appropriate Assessment

Bulgaria: From 2009-2012 the Bulgarian Society for the Protection of Birds (BSPB) reviewed around 1533 investment proposals in and around the ten SPAs important for Imperial Eagle and Saker Falcon in Bulgaria. 24 (around 2%) were considered to present a potential threat to the habitat types and species for which the site was designated (mainly involving photovoltaic or wind farm parks inside core areas of the SPA). Between 2009 and 2012 BSPB submitted one report and five statements to the investors and Regional Inspectorates of Environment and Water, presenting arguments against the investment proposals as well as 20 formal complaints to the Ministry of Environment, one to the Administrative Court and two to the Supreme Court. In 2011 and 2012, six of the projects were reworked as a result of BSPB's interventions and subsequently accepted, two were refused permission, and decisions were still ongoing for one project. Three of BSPB's complaints were rejected and the projects implemented as originally planned.

Germany: The Environment Minister provided the following statistics in 2007 on the 2003 Federal Transport Plan (Bundesverkehrswegeplan) which contained 2,600 projects. 1,600 projects were excluded from any further consideration because they posed no problem to nature, with 800 projects examined in greater detail. 350 projects posed a very high risk to the environment and were given a specific nature-conservation planning mandate for further planning. Acceptable solutions are therefore found very quickly, even for highly controversial and ecologically problematic measures, such as the North Hamburg by-pass involving the A20 or the A33 (Tatenhauser Wald). The Nature Directives helped to prevent conflicts from arising by highlighting a choice of suitable options early in the planning process. The involvement of the Commission was required in very few cases, essentially only where the economic project harmed priority species and habitats. By 2007, this had happened six times in Germany since the Habitats Directive came into force, with the Commission issuing an unfavourable opinion on only one occasion, on account of an obvious failure to follow procedures.

Germany: In Ravensburg County, Baden Württemberg, statistics show that of the approximately 1,000 plans and projects considered by the nature conservation authority within the county administration in 2006, only about 10% were potentially relevant for Natura 2000. Of these 100 projects, 40 were screened out immediately as they were not considered likely to have a significant effect on a Natura 2000 site. The other 60 projects underwent a full AA. As most were small-scale projects with only local environmental impacts, the AA was generally no more than six pages long. Nevertheless, for six projects a more detailed assessment of the impacts was required. Only one project was not approved because significant impacts could not be excluded and no appropriate mitigation solutions were available.

Slovenia: In 2011 the State Institute for Nature Conservation issued 2,820 opinions on plans or projects under the Article 6(3) procedure. 68% showed no significant impacts and were approved, 27% were approved once appropriate mitigation measures had been amended and 2% were refused because of their adverse effect on a Natura 2000 site. The statistics for projects for 2007 – 2010 shows very similar figures: 2007 – 92% of 1,356 cases had no significant effect (either before or after mitigation measures); 2008 – 93% of 1,785 cases; 2009 – 94% of 2,285 cases; 2010 – 95% of 2,587 cases.

Spain: In Extremadura, the Department of Agriculture, Rural Development, Environment and Energy, has kept a tally since 2010 of the number of plans and projects it has to deal with under the Article 6(3) procedure. The vast majority are either screened out or approved. Altogether, around 2% were refused because the AA showed significant effects. The majority of these were reworked and/or mitigation measures were introduced following discussions between the authority and the developer and were eventually approved. Many of the plans and projects were initially refused because of the poor quality of the AA (usually done by the developer or authority concerned rather than an AA expert) which prevented the authority from making a decision on the grounds of no adverse effects on the Natura 2000 site. Dialogue between the authority and the developer to review the shortcomings of the AA and the possible impacts enabled solutions to be found in the majority of cases, allowing the project to go ahead.

UK: Natural England (the statutory nature conservation body for England) receives around 26,500 land use consultations annually, of which they 'object' to less than 0.5% on Habitats Regulations grounds. Most of these objections are successfully dealt with at the planning stage. The Royal Society for the Protection of Birds (RSPB) commented on a total of 2,177 planning applications in England over the period 2001-2010, less than 0.04 % of the 599,341 submitted per annum during this period, with very few of them resulting in objections. In the small proportion of cases where comments were submitted, the objections were generally due to flaws in putting the law into practice mostly associated with insufficient environmental information, an inadequate or inappropriate survey base for the impact assessment, inadequate mitigation measures, inadequate justification for imperative reasons of overriding public interest (IROPI), lack of clarity of engagement in the process and lack of competence and/or capacity in relevant organisations (RSPB, 2012).

Source: (Sundseth and Roth, 2013).

The Ecosystems Ltd report (Sundseth and Roth, 2013) presents further evidence from an online survey which found that the majority of projects are screened out because they are considered unlikely to have a significant effect on Natura 2000 sites. Of those that do

go through a full AA, most are approved because the AA concludes that there is no adverse effect. Of the remainder, the majority are reworked or redesigned and then approved. Only a small proportion of projects are actually abandoned because the AA has concluded an adverse effect and even fewer use the derogation procedure under Article 6(4).

Ecosystems concluded that, in general, the majority of plans or projects subject to Article 6(3) are screened out because they are not considered to pose a risk to a Natura 2000 site, or are approved following an AA (with or without mitigation measures). By contrast, very few are actually abandoned or refused permits, and even fewer go through the Article 6(4) procedure. While cautioning that their findings are based on partial information and the perceptions of the authorities interviewed rather than a comprehensive statistical analysis, the authors concluded that, 'This would seem to confirm the view that Natura 2000 does not, on the whole, lead to a ban on development within these sites.'

The Directives can also impose opportunity costs on the forestry sector by limiting opportunities to extract timber, and forest owners may or may not receive compensation for such restrictions. EUSTAFOR (EUSTAFOR and Patterson, 2011) cited a German impact study (Rosenkranz and Wippel, 2012, Rosenkranz et al, 2014) which estimated average annual costs for private and state forest management organisations of EUR 40 per hectare. These include costs of habitat trees, poorer quality or reduction in timber harvest, higher harvesting costs and disposal of conifer trees, and therefore include a variety of opportunity costs and habitat management costs. It is argued that these costs have increased since 2006. Accordingly, some German federal states have introduced, or plan to introduce, compensation for private forest owners at between EUR 50-100 per hectare per year. As yet, State Forest Management Organisations do not receive any compensation, despite being subject to restrictions comparable to those of private forests.

National assessments

Eppink and Wätzold (Eppink and Wätzold, 2009) examined the 'hidden costs' of the Habitats Directive in restricting development opportunities, with reference to a case study relating to development casework affecting the Common Hamster (an Annex IV species) in Mannheim, Germany. Four development projects were found to be restricted in order to protect the species, resulting in the size of residential area and a parking lot being reduced, a building project being delayed by a year and an area of agricultural land being turned into a nature reserve. The costs of the foregone development were examined and estimated at between EUR 20m and EUR 38m for the Mannheim region. The authors found in this case that the hidden costs of changes in development plans are substantially higher than the visible conservation costs.

In 2007, in Germany, the Chamber of Commerce expressed concern that the Habitats Directive was blocking development, prompting calls from Members of Parliament to amend its implementation in Germany. However, a response from the Minister of Environment and Nuclear Safety argued that, to date, the Nature Directives had not prevented any single significant economic development in Germany. Instead, it argued that the Directives had helped to accelerate processes by managing conflicts between ecological and economic factors. The Minister argued that opposition to the Directives had been exacerbated by problems of implementation, which included a protracted and unstructured approach to designation of sites and consultation, creating legal uncertainties (Sundseth and Roth, 2013).

In the Netherlands, the high level Social and Economic Council (SER) issued a report in 2006 examining whether or not the application of the Habitats and Air Quality Directives had restricted infrastructure, housing, commercial and industrial development. It found that at that time many projects were blocked as a result of court rulings by the Dutch Council of State. According to SER, the key problems were a lack of experience with the implementation procedure of the Habitats Directive and the fact that the Habitats Directive had not been transposed yet into national law in a satisfactory manner (as judged by the Court of Justice of the European Union (CJEU) ruling from late 2005 (Case C-

441/03). SER concluded that problems with the implementation of the Habitats Directive arose firstly due to poor transposition in the Netherlands, aggravated by a lack of guidance for the lower public authorities dealing with the necessary permits (Sundseth and Roth, 2013).

A study by Backes et al. (2006) concluded that the application of Article 6 in the Netherlands rarely resulted in the rejection of a development planning request. Projects were often delayed in most cases only on formal grounds, because the legally required AA had not been carried out or had been carried out only partly or poorly. With the exception of one case reviewed by the authors, all project development requests had eventually been given a permit. The study concluded that, although Article 6 has by now been transposed reasonably well in most countries, this has taken a considerable period of time in almost all countries and has led to unnecessary friction, including litigation in the CJEU. In many countries, Article 6 has generated much controversy and debate, however, the interests of nature conservation have been given a more distinct role in decision-making and are not easy to push aside.

In the UK, the HM Government review (HM Government, 2012) of the implementation of the Nature Directives found that in the large majority of cases implementation is working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained. However, there have been some cases where the Directives have blocked development. The review cited the case of Shell Flat, where, in 2003, Cirrus Energy submitted a proposal for a 90 turbine wind farm five miles off the coast of Blackpool, North West England. Although The Crown Estate licensed this application, lack of marine data meant that the developers were unaware that its proposal would impact on a major concentration of around 50,000 scoter ducks. Despite the developer's best efforts to find a solution, it was unable to find a way of altering turbine deployment to mitigate the impact on the ducks without impacting on other interests, such as radar systems at BAE's Warton Aerodrome and navigation channels. Eventually, five years after the application was first submitted, the project was abandoned.

Responses to the evidence gathering questionnaire present a similarly mixed picture. Some representatives of land management, mining and business interests expressed concern that the Directives provide a constraint to development and economic output, as described in the following boxes.

Box 14 Opportunity costs of foregone minerals extraction

The BDI (Federation of German Industry) argues that regional planning should take species and habitat protection into account from the outset in order to promote legal certainty about subsequent authorisations. However, a lack of resources for regional planning often means that it is inadequately addressed. The BDI considers that raw material extraction is often completely suspended in some Natura 2000 areas (e.g. Brandenburg, Mecklenburg-Western Pomerania, Rhineland Palatinate, some parts of North Rhine-Westphalia) for the sake of simplicity and that, as a rule, Natura 2000 areas are no longer regarded as priority sites for raw material extraction.

Euromines argues that the Directives place significant restrictions on mining activity and that this may cause significant economic development opportunities to be foregone at local and national level. It estimates that investments in gold mines, for example, while few in number in the EU, usually exceed EUR 100m and may reach EUR 1bn for large scale projects. A small or medium-sized mine may typically employ 150 workers while large operations may have 600 or more staff. In addition, any restrictions that might be caused by Natura 2000 may result in foregone royalties and tax revenues and hence foregone opportunities to improve public services. However, although Euromines refers to restrictions imposed by some plans and policies at national and regional level (e.g. Spanish region of Murcia), the extent to which the Directives prevent mining activities taking place is not clear.

Source: Evidence gathering questionnaires submitted by BDI and Euromines.

Natura 2000 can also place restrictions on agricultural activity, particularly in areas sensitive to pollution from livestock farming.

Box 15 Opportunity costs of Natura 2000 in the agriculture sector

In Flanders, Belgium, the farmers' association Boerenbond argues that a major flaw in the Flemish Natura 2000 policy is a failure to assess the cost for economic actors, including the agricultural sector. Implementation of Article 6(3) of the Habitats Directive is problematic for Flemish livestock companies in and outside the Natura 2000 areas which exceed the critical deposition value for nitrogen. With almost 50% of the Flemish livestock companies situated within a radius of 3km of a SAC, in October 2014 the Flemish Government estimated that more than 1500 livestock farms (almost 10% of the livestock farms in Flanders) would have problems renewing their environmental license to keep animals. These farms are currently unable to expand their livestock numbers, while 135 companies are unable to renew their environmental licence and others have to reduce their ammonia emissions by 30%. The total cost of these measures has not been assessed, but Boerenbond argues that it will be very large. Restrictions on livestock farms also result from other environmental legislation, such as the Water Framework Directive and Nitrates Directive, and not just the Nature Directives.

In Denmark, the Danish Agriculture and Food Council (DAFC) argues that there are considerable uncertainties regarding the application of the Directives for the livestock sector, but that the costs will be considerable. It estimates that more than 700 producers of livestock are within range of ammonia-protected Natura 2000 sites, such that the Danish implementation of the Habitats Directive will limit their possibility to develop production to an efficient scale. Approximately 70 of these farms are so close to the protected Natura 2000 areas that DAFC argues it will be impossible for them to make any changes to the farm, creating a risk of closure. In addition, restrictions on agriculture to protect sensitive habitats such as heathlands, certain grasslands, raised bogs and oligotrophic waters outside of Natura 2000 sites, could result in further losses of potential production.

In the UK, the National Farmers' Union argues that compensation measures remove land permanently from agriculture, resulting in a loss of provisioning services. It notes that the amount of land taken for compensatory habitat is several times the amount of habitat lost. For example, Humber Estuary and Alkborough Flats SAC/SPA has taken a large area of valuable agricultural land out of production.

Source: Evidence gathering questionnaire submitted by COPA-COGECA.

The Directives may also reduce forestry output by placing restrictions on forest operations and harvesting. In some Member States, such as Sweden, a non-interventionist approach to forest management is applied in areas of high conservation interest, requiring a cessation of productive activities. Compensation is often – although not always - paid to forest owners for restrictions on operations.

Box 16 Opportunity costs of Natura 2000 in the forestry sector

Questionnaires submitted by CEPF, FECOF and the Federal Ministry of the Environment quote the results of the 'FFH impact study' in Germany (Rosenkranz and Wippel, 2012, Rosenkranz et al, 2014) which evaluated the costs of restrictions on the output of beech forests as a result of Natura 2000. Measures such as the accumulation of deadwood, old trees and restricted choice of tree species were estimated to reduce harvests by an average of 0.66 harvested m^3/ha/annum (range between 0 and 1.6 harvested m^3/ha/annum) over 200 years. This resulted in an average loss of margin of EUR 40 per ha of the area of beech habitat per year (including lost output of EUR 20/ha/annum and administrative costs of EUR 20/ha/annum of administrative costs).

In one case in Sweden, a landowner was not compensated for restriction of use of 14 hectares of forest to protect the Siberian Jay. It was alleged that he suffered a one-off loss of income of about EUR 100,000 through reduced timber harvest. Though this appears to be an isolated case, the LRF (Federation of Swedish Farmers) argues that application of similar restrictions in other forests supporting protected species could impose huge costs on landowners. Sweden offers full compensation (at a premium of 25% above market returns) for restrictions on management of Natura 2000 areas but no such compensation has yet been introduced for species conservation measures.

Source: Evidence gathering questionnaires submitted by CEPF, FECOF, Federal Ministry of the Environment (Germany) and COPA-COGECA; National Missions.

On the other hand, environmental NGOs point to evidence that most development applications are allowed to proceed without restrictions resulting from the Directives.

Box 17 Approval of development applications in Slovenian Natura 2000 areas

In Slovenia, Natura 2000 is often claimed to obstruct many projects and hinder economic development, with this opinion appearing to be strongly influenced by the selective reporting of the media, focusing only on problematic cases. However, DOPPS argues that analysis of the Slovenian state institute for nature conservation (IRSNC) expert opinions, which are part of Article 6(3) of the Habitats Directive AA, presents a different picture. In 2012 the Institute issued 2,787 expert opinions, with only 46 projects rejected (less than 2%) on the grounds of foreseen significant impacts. About half of the rejected projects were in conflict with Natura 2000 site integrity, and half with the national protected areas protection regime. The analysis shows that a majority of proposed projects have no impact (39%) or insignificant impact (32%), while for 25% of proposed projects any significant impact could be avoided by applying appropriate mitigation measures identified in the assessment procedure. DOPPS believes that the analysis shows that concerns that Natura 2000 hinders economic development are exaggerated, and that AA often allows suitable mitigation measures to be identified. Resources spent on assessment are therefore seen as beneficial and useful in furthering sustainable development objectives.

Source: Evidence gathering questionnaire submitted by DOPPS-BirdLife Slovenia.

Some stakeholders participating in the National Missions and completing evidence gathering questionnaires expressed the view that, by imposing restrictions on land management and development, the Directives could have a negative impact on land prices. However, no evidence was provided to support this view, with the exception of wolves in Sweden (see below).

Overall conclusion on opportunity costs

Opportunity costs arise where the protection of sites and species restricts development, land use change and land management. This is highlighted as a concern by certain businesses, although costs are difficult to quantify and it affects a very small proportion of all proposed developments in the EU. In many – but not all - parts of the EU, land managers are compensated for restrictions placed on agriculture and forestry as a result of the Nature Directives.

Damage costs associated with species protection

Another cost frequently cited by stakeholders relates to the damage incurred by species protected by the Birds and Habitats Directives.

In the case of large carnivores, the authorities bear a significant proportion of these costs through compensation payments to farmers, reindeer herders and landowners.

Box 18 Costs of damage caused by large carnivores

Bulgaria: Compensation for damage caused by Brown Bears amounted to EUR 40,000 in 2014. The system is considered to work well.

Finland: The Finnish Game and Fisheries Institute allocated funding totalling EUR 7.8m to large carnivore research and monitoring between 2007 and 2012 (Pohja-Mykrä and Kurki, 2014a). Large carnivores cause damage to livestock and reindeer, for which compensation of EUR 7.5m was paid in 2014. Most of the damages were caused to reindeer (EUR 7.1m in 2014). These damage costs have increased substantially since 2004. Damage and damage prevention cause other significant direct and indirect costs to farmers, reindeer herders and livestock owners through adaptations to farming measures, which are not compensated. For example, to avoid damages, some reindeer herding areas cannot be used. Each year, the Ministry of Agriculture and Forestry allocates EUR 0.5m for the prevention of large carnivore damage, including the purchase of electric fencing.

France: Article 16 of the Habitats Directive requires the prior implementation of alternatives to the

derogation for the strict protection of species. In the case of the wolf in France, these alternatives (damage prevention and compensation measures) cost the state more than EUR 12m in 2013, and continue to grow. The Fédération Nationale des Chasseurs argues that these costs are excessive and only partly achieve the objectives of the Directive, and that hunting derogations should be allowed.

Sweden: Svenska Jägareförbundet (contributing to the Federation of Associations for Hunting and Conservation of the EU (FACE) questionnaire) contrasts the annual expenditure on management of large carnivores by the Swedish authorities (EUR 16m/ year) with those of other endangered species such as the Arctic Fox (EUR 0.1m/year) and Lesser White-fronted Goose (EUR 0.076m/year). The submission refers to a MSc thesis by Kvastegård (2013) which found that growth in land prices in wolf areas has been significantly less than in wolf-free areas since 2000, and that prices in the former are now 12% lower in 2012 than in the latter. It also refers to studies which have found that the sale of hunting licences and production of moose meat has fallen in areas with wolves.

Source: Evidence gathering questionnaires submitted by Ministry of Environment and Water (Bulgaria), FACE, LRF (Sweden), Ministry of the Environment (Finland).

Fish-eating birds are another group frequently cited by stakeholders as damaging economic interests, particularly with regard to the aquaculture sector.

Box 19 Losses to aquaculture from protected species

Hungary: Fish ponds in Hungary (total surface of about 30,000 ha) are valuable wetlands that provide feeding, nesting and breeding habitats for wild birds. Pond fish farms contribute significantly to the goals of the Directives, without receiving compensation. According to the questionnaire submitted by FEAP, the cost to the 900 ha Aranyponty Fish Farm for scaring the Great Cormorant is estimated at about HUF 5m (EUR 16,000) per year. It claims that fish consumption of cormorants in Hungary totals 2,427,700 kg, which is about 13% of the total pond fish production. This equates to gross losses of about HUF 1,213m (about EUR 4m) for the fish farmers.

Czech Republic: Direct losses of fish caused by cormorants in aquaculture have been reported by the Czech Fish Farmers´ Association at EUR 3m - 3.5m/year. Additional costs are incurred in hunting and scaring. It is also claimed that losses caused by herons total EUR 1m/year (without compensation) and by otters EUR 1.4m/year (with compensation estimated to amount to 18% of losses). The Association also estimates damage by beavers to ponds, flooding systems and reservoirs at more than EUR 5m/year.

While the above species are protected under the Birds and Habitats Directives, the extent to which the costs identified are the result of the Directives themselves is unclear, particularly since both Directives allow derogations to enable the control of species which cause serious damage to fisheries.

Source: Evidence gathering questionnaire submitted by FEAP.

Overall, the evidence demonstrates that the costs of damage caused by protected species, and the associated compensation payments, while they may be significant at a local level, are small relative to the estimated management costs.

6.1.3.1.5 Costs of the Directives – responses to online public consultation

Q21 of the online public consultation questionnaire asked about the significance of the costs of the Directives. This question appeared in Part II of the questionnaire, where there was evidence that responses had been affected by campaigning against the Directives. In general respondents to this question indicated that they considered the costs of the Directives to be substantial. Administrative costs were seen as 'major costs' by 60% of respondents, compared to Natura 2000 site management costs (considered by 55% to be major costs), opportunity costs (55%), costs of protecting species other than birds

(55%), and costs of protecting bird species (53%). Each type of cost was rated as 'insignificant' by only 6-8% of respondents to the question.

6.1.3.2 Benefits of the Nature Directives

6.1.3.2.1 Types of benefits

The main objectives of the Directives are to protect habitats and species. In doing so, the Directives also benefit people through the maintenance and enhancement of ecosystem services, which in turn contribute to human wellbeing and economic development.

The **ecosystem services** framework provides a structured framework for categorising, assessing, quantifying and valuing the benefits of natural environmental policies for people. However, it is also widely recognised that biodiversity has **intrinsic value** and that the Directives aim to protect habitats and species not just for their benefits to people, but because we have a moral duty to do so. In addition, consideration of benefits needs to take account of the **economic impacts** of implementation of the legislation, including effects on jobs and output resulting from management activities, as well as the effects associated with ecosystem services (such as tourism).

A typology of benefits, as developed for the evidence gathering questionnaire, in given in Table 17. Assessment of the benefits of the Directives for biodiversity is a major element in the evaluation of their effectiveness. Effects on ecosystem services can be assessed in both:

- **Biophysical terms** – e.g. effects on flood risk, number of households provided with clean water, number of visitors to Natura 2000 sites etc.
- **Monetary terms** – e.g. reduced cost of water treatment and flood defences, value of recreational visits, willingness to pay for conservation benefits.

Evidence of economic impacts includes estimates of expenditures by visitors to Natura 2000 sites, employment in the creation and management of the Natura 2000 network, and resultant effects on gross value added to local and national economies.

Table 17 Typology of benefits

Type of benefit	Examples
Benefits for species and habitats	Extent and conservation status of **habitats.** Population, range and conservation status of **species.**
Ecosystem services	Effects of Directives on extent and value (using a range of physical and monetary indicators) of: • **Provisioning services** – food, fibre, energy, genetic resources, fresh water, medicines, and ornamental resources. • **Regulating services** – regulation of water quality and flows, climate, air quality, waste, erosion, natural hazards, pests and diseases, pollination. • **Cultural services** – recreation, tourism, education/science, aesthetic, spiritual and existence values, cultural heritage and sense of place. • **Supporting services** – soil formation, nutrient cycling, and primary production.
Economic impacts	Effects of management and ecosystem service delivery on local and national economies, measured as far as possible in terms of:

Type of benefit	Examples
	• **Employment** – including from one-off and recurring conservation management actions, as well as jobs provided by tourism and other ecosystem services (measured in full time equivalents (FTE)). • **Expenditure** – including expenditures by visitors as well as money spent on conservation actions. • **Business revenues** – including effects on a range of land management, natural resource, local product and tourism businesses. • **Local and regional development** – including any effects on investment, regeneration and economic development. • **Gross Value Added** – the additional wages, profits and rents resulting from the above.

6.1.3.2.2 Benefits for species and habitats

The core benefits of the Directives are in protecting species and habitats, which have intrinsic value as well as being valued by people, and delivering ecosystem services. These core benefits are addressed by the section on effectiveness above.

The following sections concern evidence of the value of the benefits of the Directives in terms of their delivery of ecosystem services, as well as their contribution to economic development.

6.1.3.2.3 Value of benefits and ecosystem services

EU studies

Most evidence of the value of the benefits of the Directives at EU level relates to the value of the services delivered by the Natura 2000 network.

A study by ten Brink et al (2011) presented overall estimates of the value of benefits of Natura 2000 and of particular ecosystem services. It was estimated that the Natura 2000 network provides benefits of between EUR 200-300bn per annum, amounting to around 1.7 - 2.5 % of EU GDP.

This estimate was derived by extrapolating existing estimates of the overall value of the benefits delivered by a subset of Natura 2000 sites. The review found 34 different estimates of the value of the benefits of Natura 2000 sites in 12 Member States from 20 different studies. It highlighted that benefits estimates vary widely between sites, ranging from less than EUR 50 per hectare per year to almost EUR 20,000 per hectare per year. The range of values identified underscores that sites are not uniform, while estimates of the value of the services they deliver also vary according to the methods used and data available. These studies were used to calculate average per hectare benefit estimates for Natura 2000 sites. Given that the available benefits assessments were skewed towards North West Europe (especially the UK and the Netherlands), they were adjusted for variations in national per capita GDP to give more representative EU averages. This gave average annual per hectare values of the total benefits of Natura 2000 sites of EUR 2,447 (median) and EUR 3,447 (mean).

The per hectare benefits were found to vary widely by habitat, with mean estimates of benefits per hectare per year ranging from EUR 1,898 (for grasslands) to EUR 7,866 (for temperate heath and scrub). The estimates refer to the overall benefits of the sites rather than to particular features or practices related to the Directives.

Table 18 Benefits per hectare of Natura 2000 sites

Site	Ecosystem services / types of benefit	Site value per ha per year (EUR, 2011 prices)	Reference
Pond Complex of Central-Limburg, Belgium	Provisioning services, tourism and recreation	1,406	Desmyttere and Dries (2002)
Scheldt estuary, Belgium	Regulating and provisioning ES (various)	3,990	Ruijgrok, E.C.M. (2007)
Skjern River restoration, Denmark	Biodiversity/ existence values, recreation, water purification and regulation, fibre production	1,218	Dubgaard et al (2002)
Protected forests in eastern Finland	Non-market values measured through contingent valuation	403	Kniivila et al (2002)
La Crau, France	Non-market benefits (public willingness to pay) + hay production	229	Hernandez and Sainteny (2008)
Donana, Spain	Range of ecosystem services, estimated through contingent valuation method	375	Martin-Lopez et al (2007)
Sites protected for Large Blue Butterfly, Landau, Germany	Range of services and values including non-use values	6,932	Watzold et al. (2008)
Burren, Ireland	Cultural services: tourism and recreation; Broader socio-economic benefits: beneficial externalities of conservation	2,714	Rensburg et al. (2009)
Wadden Sea Natura 2000 sites, Netherlands	Wide range of provisioning, regulating and cultural services	3,650	Kuik et al (2006)
River Natura 2000 sites, Netherlands	Use and non-use values, estimated through hedonic pricing and benefits transfer	5,324	Kuik et al (2006)
Lake and marsh Natura 2000 sites, Netherlands	Tourism, recreation, non-use values including biodiversity	5,944	Kuik et al (2006)
Dune Natura 2000 sites, Netherlands	Flood protection, recreation, non-use values	13,198	Kuik et al (2006)
High fen and sandy soil Natura 2000 sites, Netherlands	Recreation, non-use values	1,274	Kuik et al (2006)
Stream valley and hills Natura 2000 sites, Netherlands	Provisioning, amenity, recreation, non-use values measured through stated and revealed preference methods	4,974	Kuik et al (2006)
Białowieża Forest, Poland	Recreation, amenity and existence, freshwater, range of provisioning services (e.g. food, timber), tourism, pest control	2,799	Pabian and Jaroszewicz (2009)
Pico da Vara / Ribeira do Guilherme, Azores, Portugal	Water provision, quality & regulation; Recreation and eco-tourism; Landscape and amenity values	642	Cruz and Benedicto (2009)
Lower Green Corridor, Romania	Provisioning services: fisheries, forestry, animal fodder; Regulating services: nutrient retention; Cultural services: recreation	512	Ebert et al. (2009)
Danube floodplains (7 countries, 60% in Romania)	Provisioning services, recreation, water purification	572	Gren et al (1995)
Maramures Mountains Natural Park, Romania	All ecosystem services	416	Ceroni (2007)

Site	Ecosystem services / types of benefit	Site value per ha per year (EUR, 2011 prices)	Reference
Clyde Valley Woods, Scotland	Recreation and non-use values (based on Contingent Valuation Method (CVM) of visitors and general public	5,665	Jacobs (2004)
Waukenwae and Red Mosse, Scotland	Recreation and non-use values (based on CVM of visitors and general public	14,769	Jacobs (2004)
River Bladnoch, Scotland	Recreation and non-use values (based on CVM of visitors and general public	5,341	Jacobs (2004)
Sands of Forvie, Scotland	Recreation and non-use values (based on CVM of visitors and general public	4,404	Jacobs (2004)
Tips of Corsemaul and Tom Mor, Scotland	Recreation and non-use values (based on CVM of visitors and general public	19,763	Jacobs (2004)
Strathglass Complex, Scotland	Recreation and non-use values (based on CVM of visitors and general public	87	Jacobs (2004)
Lewis and Harris, Scotland	Recreation and non-use values (based on CVM of visitors and general public	155	Jacobs (2004)
Sites of special scientific interest in England and Wales (almost 80% by area are Natura 2000)	Range of seven key provisioning, regulating and cultural services (gross)	7,926	GHK (2011)
Wallasea Island, England	Range of key ecosystem services	1,447	Eftec (2008)
Derwent Ings , England	Social benefits of Natura 2000 site, measured through CVM	1,318	Willis, K.G (1990)
Skipworth Common, England	Social benefits of Natura 2000 site, measured through CVM	5,987	Willis, K.G (1990)
Upper Teasdale, England	Social benefits of Natura 2000 site, measured through CVM	1,150	Willis, K.G (1990)
Alkborough Flats, North Lincolnshire, England	Range of ecosystem services	4,508	Everard, M. (2009)
Humber Estuary, England	Amenity and recreation, carbon	847	Luisetti et al (2010)
Blackwater Estuary, England	Amenity and recreation, carbon, fisheries	4,371	Luisetti et al (2010)

*Source**:** (ten Brink et al, 2011).*

The study also provided overall estimates of the value of some ecosystem services (Box 20). The figures indicate the overall value of services delivered by Natura 2000 sites, and hence protected by the network, rather than the added value of the Directives themselves.

Box 20 Natura 2000 delivers valuable ecosystem services

Storing Carbon: Many Natura 2000 sites protect ecosystems (e.g. forests, wetlands, peatlands, grasslands, marine and coastal areas) that are important current stores of carbon and offer significant opportunities for further carbon sequestration. It is estimated that the Natura 2000 network currently stores around 9.6 billion tonnes of carbon, equivalent to 35 billion tonnes of CO_2, which is estimated to be worth between EUR 600 and 1,130 billion (stock value in 2010), depending on the price attached to a ton of carbon. These carbon values are expected to increase in the future, especially if the conservation status of the network improves. Onsite measures that positively affect carbon fluxes include the restoration of wetlands, peatlands and agroforestry ecosystems. On the contrary, policies that encourage land conversion from grassland to cropland will cause the release of stocked CO_2 into the atmosphere.

Natural Hazards: Natura 2000 sites offer potentially significant cost savings and a reduction in damage caused by extreme weather events. Natural hazards cause significant damage across the EU. For the period 1990–2010, the value of economic losses from natural disasters in the EU-25 amounted to around EUR 163bn. Natura 2000 maintains healthy, intact and robust ecosystems which play a vital role in mitigating the impacts of disasters (such as floods, avalanches, landslides) and reducing the overall vulnerability of communities to these disasters. Although the benefits arising from natural hazards risk reduction are very site-specific, well-functioning ecosystems can offer efficient mitigation services, often at a much lower cost than man-made measures. For instance, in the Kalkense Meersen Natura 2000 site in Belgium, it has been estimated that the restoration of the original river landscape by means of wetlands and estuarine habitats restoration will bring flood mitigation benefits of between EUR 0.64m–1.65m per annum.

Food security and provision: Natura 2000 sites harbour a wide range of valuable plants and animals, such as pollinating insects, which are important to society. Insect pollination services have an annual value estimated at EUR 14bn per year in the EU, representing 10% of the value of agricultural food production in 2005. Existing data do not allow the contribution of Natura 2000 to be quantified. Many Natura 2000 sites also support important agricultural practices. Farmland covers almost 50% of the EU territory, and agri-ecosystems represent 38% of the surface of Natura 2000 sites. High nature value (HNV) farming can offer significant benefits for biodiversity, as well as helping to support local breeds, conserving genetic diversity and enhancing the resilience of the sector.

Water: Water purification and provision are important ecosystem services provided by natural ecosystems, including protected areas such as Natura 2000. A number of major European cities, including Munich, Berlin, Vienna, Oslo, Madrid, Sofia, Rome, and Barcelona all benefit from natural filtration in different ways. These municipalities save money on water treatment due to natural treatment from ecosystems. The savings can be passed on to consumers, resulting in lower utility costs for EU residents. The four European cities of Berlin, Vienna, Oslo and Munich are each estimated to receive annual economic benefits of between EUR 7 and EUR 16m from water purification and between EUR 12 and EUR 91m through water provision from Natura 2000. The average per capita benefits are between EUR 15 and EUR 45 per year for both water purification and provision combined in the four European cities analysed. This compares to average household water bills of EUR 200 per year in Germany.

Marine Protected Areas : Marine Protected Areas (MPAs), including marine Natura 2000 sites, support a range of ecosystem services which help, among other things, to maintain healthy fish stocks. The value of benefits delivered by the marine area currently protected by the network (equivalent to 4.7% of the EU's marine area) is approximately EUR 1.4–1.5bn per year. This would increase up to EUR 3.0–3.2bn per year if 10% of the sea area were protected, and EUR 6.0–6.5bn per year for protection of 20% of the sea area. These values are approximate, and obtaining more robust results would require an improved understanding of how protection would influence aspects such as habitats, services and offsite fisheries.

Source: European Commission (2013).

A related study by BIO Intelligence Service (BIO Intelligence Service, 2011) assessed the value of tourism and recreation benefits delivered by the network. It estimated both the value of the recreational experience received by visitors to Natura 2000 sites, and their expenditures and the resulting economic impacts.

- Natura 2000 sites receive between 1.2 and 2.2 billion visitor days per annum.
- The Natura 2000 designation was estimated to be a motivation for 21% of these visitors.
- The benefits to visitors from these recreational visits to Natura 2000 sites was estimated at EUR 5-9bn per annum, based on estimates of visitors' willingness to pay, equating to an average willingness to pay of EUR 4 per visit.
- The total expenditure related to tourism and recreation supported by Natura 2000 was between EUR 50bn and EUR 85bn in 2006.

Arcadis et al (2011) developed a tool to assess the changes in the value of ecosystem services brought about by changes in the management of Natura 2000 sites. This was used to estimate the net benefit of changes in management at 11 Natura 2000 sites around the EU. Conservation action was found to deliver positive net benefits at most of these 11 sites, even allowing for data gaps. The largest net benefit was estimated to have a present value of between EUR 46-65m at Montserrat, Spain (Box 18). The authors concluded that the tool provided the best possible insight into the economic value of the wider benefits of conservation measures, but cautioned that it did not always give an accurate picture and made a number of recommendations about how it could be improved.

Box 21 Tool for valuing conservation measures at Natura 2000 sites

The toolkit uses **nine steps** which apply knowledge and data about the Natura 2000 site to construct an economic appraisal of likely ecosystem service changes as a result of conservation measures. The steps are:

1. Defining the baseline and its level of ecosystem services and other economic benefits (expected situation in absence of new management measures).
2. Identifying new conservation measures in order to reach Favourable Conservation Status (additional management options).
3. Identifying impacts of management changes on ecosystem goods and services.
4. Identifying human populations affected by impacts.
5. Economic valuation of ecosystem service changes.
6. Calculation of discounted costs and benefits.
7. Accounting for non-monetised impacts.
8. Sensitivity analysis.
9. Reporting.

The tool was tested at 11 Natura 2000 sites, reflecting a range of different geographies, habitat types and socio-economic circumstances across the EU: Kalkense Meersen (Belgium), Lomovete (Bulgaria), Muntanya de Montserrat (Spain), Telascica (Croatia), Krkonose Mountains (Czech Republic), Ehrenburg und Katzenköpfe (Germany), Elatia Forest (Greece), Naardermeer (Netherlands), Haaksbergerveen (Netherlands), Vindelfjallen (Sweden), and Humber Estuary (UK).

The case studies were able to value only some of the ecosystem service benefits of the 11 sites. Summing the benefits that could be valued, and deducting the estimated costs of the conservation measures required, estimates were made of the net benefits of conservation at each of the 11 sites. These ranged from a small net cost at three sites, to net benefits with a present value of EUR 53-60m (Telascica, Croatia), EUR45-65m (Montserrat, Spain) and EUR 38-74 m (Humber Estuary, UK). The most valuable ecosystem services were found to vary between sites, and included food production (Telascica), landscape/amenity, erosion control and climate regulation (Montserrat), and flood management and fisheries (Humber Estuary).

Source: Arcadis et al (2011).

National studies and evidence gathering questionnaires

A study by Kuik et al (2006) estimated the benefits provided by Natura 2000 in the Netherlands at around EUR 4,000/ ha /year, based on estimates from a range of Natura 2000 ecosystems. Recreation and tourism, as well as wider ecosystem functions, were important components of this value, as were non-use benefits. The provisioning service of raw materials was accorded lesser importance in the Netherlands. The authors extrapolated the gross welfare benefits of all Natura 2000 areas in the Netherlands (1.1 million ha), deriving an estimate of around EUR 4.5bn/ year.

Jacobs (2004) estimated the benefits of all 300 Natura 2000 sites in Scotland, using contingent valuation surveys. They found that around 99% of these benefits (GBP 210m or EUR 294m per year) relate to non-use values, shared between the Scottish general public and visitors to Scotland. Only around GBP 1.5m (EUR 2.1m, or 1%) of the benefits relate to use values (e.g. walking etc.). The willingness to pay to protect the sites was

found to average GBP 48 (EUR 67) per Scottish household per year. Other ecosystem services were recognised to be valuable but were not assessed.

Further evidence of the benefits of the Directives is given in responses to the evidence gathering questionnaire. 62 respondents provided evidence of the benefits, with 38 providing quantitative evidence. Some examples of evidence of the benefits of Natura 2000 at the national, regional and local level are given in the following box.

Box 22 Ecosystem services delivered by Natura 2000

Flanders, Belgium: A recent study (Broekx et al, 2013) assessed the value of the benefits provided by 11 ecosystem types represented in the Natura 2000 sites in Flanders. This estimated the value of these benefits at EUR 800-1,400m/year. The benefits of Natura 2000 sites to human health were found to account for the largest share of these benefits.

Croatia: Flores et al (2011) examined the potential benefits of ecosystem services from sustainable management of the Northern Velebit National Park and Velebit Nature Park (both Natura 2000 sites). It estimated a net gain of nearly EUR 17m in the tourism sector alone, with substantial additional gains related to agriculture, forestry and freshwater conservation. Pithart (2015) evaluated the ecosystem services of the Croatian floodplain area along the rivers Mura, Drava, Sava and Danube – almost entirely designated as Natura 2000. Aspects such as wood production, fish production, flood mitigation, habitat provision, game animal production, drinking water provision and nutrient retention were analysed in the 200 km^2 study area and were estimated to provide benefits of between EUR 160-280m per year.

Estonia: The evidence gathering questionnaire from the Ministry of the Environment summarised a study (unreferenced) estimating that the restoration of Pärnu river, the most important potential salmon river in the country, would increase smolt production by an estimated 45,000 – 58,000 smolts per year. After restoration, this would lead to fisheries income increases by up to EUR 5m per year. The maximum cost of restoration was estimated at EUR 15m, which would include work on open migration routes and to restore spawning sites.

Slovenia: A 2011 study of the economic value of ecosystem services of Lovrenška jezera estimated the value of the ecosystem services delivered by sustainable management to be four times higher than if the area was managed unsustainably. Another study valued ecosystem services at Škocjan Caves Regional Park at EUR 12.9m per annum under current management, with the potential to increase this to EUR 14.8m through improvements in management. At Sečovlje Salina Nature Park, enhanced management of the Natura 2000 site, with the support of the LIFE+ programme, has increased visitor numbers in the last 12 years from 8,000 to 40,000 per year, with the number of employees growing from 16 to 92.

Bialowieza Forest, Poland: A study estimated the public's willingness to pay to protect this Natura 2000 site at PLN 840m (EUR 193m) per year (Gantioler et al, 2011). This sum far exceeds the current income from logging (PLN 3.5-5m; EUR 0.8-1.2m). Another study estimated the market value of tourism and provisioning services (e.g. honey, game, mushrooms and wild berries) at around PLN 700,000 (EUR 160,000) annually. Finally, another study, employing the travel cost method, estimated the value of recreational benefits of the site at PLN 11m (EUR 2.5m) each year (Government of Poland, 2014).

Slovakia: The total economic value of ecosystem services generated by Natura 2000 sites and nationally protected areas within the National Park Velka Fatra was estimated at EUR 180m (EUR 4,400 per hectare).

Netherlands: A dissertation examined the four main ecosystem services supplied by the De Wieden wetland, i.e. reed-cutting, fisheries, recreation, and the habitat service. The research shows that the four services generate a combined annual value of around EUR 830/ha/year. This is high compared to the value generated by surrounding agricultural land, estimated at around EUR 300 to 400/ha/year.

UK: MPAs play a vital role in restoring and safeguarding crucial ecosystem services, including spawning and nursery grounds for commercial fish stocks, climate regulation, nutrient recycling, and environmental resilience. It has been estimated that the proposed Scottish component of the network alone could provide economic benefits worth GBP 10bn (EUR 14bn). Another study found that ecosystem services with a net value of GBP 52.8 – 54.5m (EUR 74-76m) may be realised as a

result of maintaining or restoring MPAs in Northern Ireland.

Source: Evidence gathering questionnaires submitted by Agency for Nature and Forests, Government of Flanders, Natuurpunt vzw and Natagora (Belgium), Association BIOM (Croatia), Ministry of the Environment (Estonia), Ministry of the Environment and Spatial planning (Slovenia), WWF Poland, Slovak Ornithological Society, Vogelbeschirming Nederland and Joint Links (UK).

Box 23 Benefits of species protection: The White Stork in Poland

About 23% of the world population of White Stork breeds in Poland, where this species has great cultural significance and is considered a national treasure. Stork populations are also among the most studied and the longest monitored. Long-term trends indicate a moderate decline in the White Stork population in Poland. Storks nest in the vicinity of human settlements and attract people's attention, with a small part of the eastern population of Storks forming nesting colonies, or stork villages. In Poland there are about 10 such colonies, the most famous of which is Zywkowo in the Masurian Lake District, where 20-40 White Stork nests are resettled each year. The colony is visited by 2000-5000 tourists each year.

A study assessed the value of the White Storks as a tourist attraction, using the travel cost method. The results of a survey carried out in 2011 in Zywkowo estimated the average consumer surplus, and thus the benefit for visitors from visiting the Stork village, at almost PLN 200 (EUR 46) per visitor. The value of time spent in visiting the site was estimated at a further PLN 200 (EUR 46) per person. Therefore, the total annual benefit of all visitors to Zywkowo, Podlaskie Voivodship (2850 people in 2011) was estimated to total PLN 0.57m (EUR 0.13m) consumer surplus, or PLN 1.16m (EUR 0.27m) consumer surplus plus time value.
Source: Evidence gathering questionnaire submitted by WWF Poland.

6.1.3.2.4 Benefits to the economy

EU evidence

BIO Intelligence Service (2011) estimated the economic benefits of Natura 2000 and related tourism activities.

- Natura 2000 sites receive between 1.2 and 2.2 billion visitor days per annum, of which 21% are motivated by the Natura 2000 designation itself.
- These visits support annual tourism expenditure of EUR 50-90bn per annum, of which around EUR 15bn is expenditure by visitors motivated by the Natura 2000 designation.
- These expenditures were estimated to support, directly or indirectly, a total of between 4.5 and 8 million FTE jobs across the EU, of which an estimated 0.8 – 2.0 million jobs are supported by expenditures by visitors motivated by the Natura 2000 designation.

Natura 2000 sites were estimated to support a total of 12 million jobs in 2006-08, or about 6% of total employment in the EU. This includes:

- 3.2 million jobs in recreation.
- 1.3 million jobs in agriculture.
- 200,000 jobs in fishing.
- 700,000 jobs in forestry.
- 7 million jobs in other industries.

A study by GHK (2011) examined the potential for creation of green jobs through EU budgetary investments. Using cost data taken from Gantioler et al (2010) and estimates made by Rayment et al (2009), the report estimated the effects of investments in the

implementation of the Natura 2000 network. On the assumption that wages account for 50% of the costs of implementation, and that wages for Natura 2000 employees average EUR 28,000 per annum, it was estimated that each EUR 1bn spent on the implementation of the network would create 17,900 FTE jobs. Inclusion of indirect effects (resulting from expenditures on goods and services) and induced effects (resulting from employee and supplier spending) would increase this figure to 29,900 FTE jobs per billion euro of expenditure on Natura 2000. It was noted that the jobs created would include a combination of low-skilled (e.g. capital works) and higher-skilled jobs (e.g. research, surveys, consultations). The 30,000 jobs supported by each EUR 1bn of expenditure in Natura 2000 were found to compare favourably with estimates of 3,000 to 6,000 FTE jobs per EUR 1bn expenditure of the current CAP, and 16,800 FTE jobs supported per EUR 1bn of Cohesion Policy investment.

ICF GHK et al (2012), in a study for the European Commission on the implications of EU biodiversity targets in the labour market, assessed the effects of implementing the Natura 2000 network on jobs and skills. Using the same methodology as in the GHK study (GHK, 2011), the report estimated that full implementation of the Natura 2000 network, involving annual expenditure of EUR 5.8bn, would support 104,000 FTE jobs directly and 174,000 FTE jobs in total (including multiplier effects) in the EU.

Box 24 Types of jobs created by implementing the Natura 2000 network

The largest number of new jobs created will be related to the management and monitoring of Natura 2000 sites. These will include managerial occupations (such as site managers and management planners), which tend to perform well in terms of earnings, working hours and job security. However, according to one survey, the proportion of women in these roles can sometimes be low.

The site management and monitoring activities are also likely to create new scientific-technical occupations, including site and species protection officers, monitoring specialists, ecological advisers and consultants. These are normally highly-skilled jobs (with most workers holding tertiary education qualifications), involving a high degree of initiative and creativity, as well as considerable amounts of field work and guaranteeing regular contact with nature. On the downside, however, scientific-technical jobs in the nature conservation subsector have not always succeeded in attracting women and other traditionally excluded groups. They also often have relatively low salaries and, when they occur in the private sector, can sometimes consist of self-employed and/or part-time or volunteer work, and therefore offer lower levels of job security.

Teachers and other education specialists will also be needed to raise awareness of the means and benefits of conserving biodiversity. These jobs are likely to offer employment opportunities for women as well as men, with average earnings and high levels of job satisfaction and control.

The designation of Natura 2000 sites and the development of new visitor infrastructure are also likely to create a considerable number of new tourism jobs locally (including visitor wardens and guides, as well as more general jobs in the tourism sector). General tourism jobs are often associated with low earnings and low levels of job satisfaction, although more specialist nature focused jobs for visitor wardens and guides may have higher levels of job satisfaction.

Assessing and addressing the financial implications of completing the Natura 2000 network is likely to create a smaller number of high quality jobs in the field of finance. These bankers, insurance specialists and other economists will need to have sound knowledge of biodiversity. They are likely to be well-paid as a result of their commercial relevance, and to enjoy high levels of job security, flexible working hours and good opportunities for training and career progression. A small number of policy researchers and marketing specialists involved in fundraising, and police and customs officers involved in regulatory enforcement, would also be required, occupations which are likely to attract younger workers and have a better gender balance.

Finally, a large number of skilled manual jobs will be needed to help with the management and restoration work of the new Natura 2000 sites. Workers in these jobs often enjoy high levels of job satisfaction, but sometimes perform less well against certain other qualitative criteria. These include low earnings, higher risk conditions and, in some cases, insufficient training opportunities. Nevertheless, it is often difficult to generalise about these jobs, as some farmers enjoy high incomes and invest in training their workforce.
Source: (Jurado et al, 2012).

The following boxes present evidence of the benefits of the Directives for economic development, as described in the evidence gathering questionnaires submitted by stakeholders.

Box 25 Natura 2000, jobs and skills in Greece

In its survey of the operation of management bodies of protected areas, the national Natura 2000 committee reported that 276 individuals were employed as regular and/or seasonal staff in these bodies (Vokou et al, 2014). These management bodies cover about one-third of the Natura 2000 area, each employing between three and 32 staff. Another study by Chrysogelos and Theodoropoulos (Chrysogelos and Theodoropoulos, 2012) estimated that management of the Natura 2000 network would create between 800 and 1200 jobs. Natura 2000 may also support other jobs indirectly in regional and local administration, Forest Services, Police and Port Authorities and the private sector (NGOs, consultancies, photographers, etc).

The numerous projects that have been undertaken in past years in support of the implementation of the Directives have contributed to the establishment of professional expertise in nature conservation, as well as to the development of additional skills such as project development, monitoring and evaluation. The Nature Directives have increased demand for the development of species and site management plans, species action plans, species population surveys, site and species monitoring projects, EIA and AAs, and visitor interpretation projects in protected areas, among others, creating new job opportunities. It is estimated that more than 1,000 full- or part-time professionals are employed in such projects in the country annually. These job positions are maintained in the private sector through projects financed by the EU Life programme, Interreg, the Structural Funds, NGOs, private investors and others. Engagement of local conservation groups in EU funded projects, such as LIFE+, empowers active public engagement in nature conservation. These local groups are trained in conservation monitoring practices that are implemented by the projects, creating skills that last beyond the duration of the project (see, for example, Kordopatis and Polymeros, 2014).

Source: Evidence gathering questionnaire submitted by WWF Greece.

Box 26 Wildlife tourism in Estonia, the UK, the Netherlands and Slovenia

Bryden et al (2010) found that wildlife tourism resulted in GBP 1.4bn (EUR 2bn) of annual visitor spending and 39,000 FTE jobs in Scotland. Ehrlich (2013) estimated that nature-based tourism brings additional visitor expenditure of EUR 30m annually to Estonia.

After being persecuted to extinction in the UK by 1916, legal protection for the White-tailed Sea Eagle and its reintroduction has resulted in a significant recovery, with populations now established on both the west and east coasts of Scotland. A study has estimated that on the Scottish island of Mull, up to GBP 5m (EUR 7m) of tourist spend per annum is attracted by White-tailed Eagles, supporting 110 jobs and GBP 1.4m (EUR 2m) of local income per annum (RSPB Scotland, 2011).

Direct and indirect tourism spending due to dolphin and whale-watching in the UK has been rising since 1991, along with total visitor numbers (Woods-Ballard et al, 2003). Visitors who come to see the bottlenose dolphins in the Moray Firth SAC contribute more than GBP 4m (EUR 5.6m) to the local economy (Davies et al, 2010) and have resulted in an active seasonal commercial boat-based industry, as well as providing a great opportunity for land-based watching and monitoring (Thompson et al, 2004).

Minsmere, Suffolk: Minsmere is part of the Minsmere and Walberswick SPA, a complex mosaic of habitats from mudflats, reedbeds to woodland. The RSPB is the largest employer in the local parish council district and the reserve attracts up to 100,000 visits annually to the area, spending an extra GBP 3m (EUR 4.2m) per year in the local economy, and supporting more than 100 FTE (Shiel et al, 2011). These significant economic benefits are directly related to the features and species protected by the SPA designation.

In the Netherlands, the presence of protected species such as the beaver can provide great economic benefits for nature areas. In the Biesbosch, excursions given throughout the year attract revenues of around EUR 13,750 on a yearly basis. Nature-related benefits for companies in the Millingerwaard in the Gelderse Poort comprise a total of about EUR 23,000 per year. Wildlife thus provides economic gain (Bade et al, 2010).

In Slovenia, bear-watching attracts increasing numbers of eco-tourists. In recent years local hunting clubs, many of which are facing increasing financial difficulties, have gained profits of up to EUR 5000 annually from bear-watching ecotourism.

Source: Evidence gathering questionnaires submitted by Ministry of the Environment (Estonia), Joint Links (UK) and Vogelbescherming Nederland, DOPPS- BirdLife Slovenia.

Box 27 Benefits of Natura 2000 for agriculture and food production

Austria: In the programming period 2007-2013, Austria carried out 1,026 nature protection projects. According to the project leaders, 25% of these projects contributed to improved agricultural revenues, e.g. by establishing landscape preservation associations or supporting the joint development of products certificated by nature parks (e.g. grass-fed cattle from the Wienerwald Biosphere Reserve). Such products provide farmers with sustainable revenues (Pinterits et al, 2014).

Estonia: Management of semi-natural grasslands (now 25,000 ha, which will increase to 45,000 ha by 2020) has benefited the rural economy. Grazing management under Natura 2000 has boosted livestock numbers and the allocation of beef quota, and contributed to the profitability of the livestock sector. Initially Estonia was not eligible for beef quota but managed to gain an allocation of quota, based on plans for grassland management.

France: In the Nord-Pas-de Calais region of France, pastoral management of limestone hillsides designated as SPA/SAC has been undertaken through partnerships with local breeders of the Boulogne breed of sheep.

In the Basse plaine de l'Aude SPA, the largest wine cooperative has become involved in the protection of birds, especially the Lesser Grey Shrike, a species which has become emblematic of the lowlands of the Aude. Agri-environmental measures have been implemented to improve the habitat by maintaining trees and ditches, tackling shrub encroachment and protection of vineyards. This has benefited growers by developing local identity, diversifying activities into nature tourism and contributing to product quality and marketing. A special vintage 'Lesser Grey Shrike' has emerged since 1996, and part of the proceeds from these wine sales is donated to a special fund concerned with the conservation of the bird and its habitat.

Slovakia: In Slovakia, the project 'Strážovské vrchy – a living and rich region', has restored more than 80 ha of long abandoned and heavily overgrown grasslands in SCI Strážovské vrchy and SPA Malá Fatra. Prior to the project, the sites produced virtually no economic income and had low landscape value. After the restoration, they produce an annual income from meat and milk production of EUR 21,459, helping to create sustainable job opportunities and support rural development. The project has enhanced the attractiveness of the landscape by planting fruit trees on the restored pastures and restoring terraced fields, and opening the landscape for hiking and outdoor recreation. As well as being welcomed by farmers, the project has benefited species such as Orchids, Corncrake, Golden Eagle and Nightjar.

Source: Evidence gathering questionnaires submitted by Umweltdachverband (Austria), Ministry of the Environment (Estonia) and LPO (France), Slovak Ornithological Society; National Missions.

The beneficiaries of conservation and visitor expenditures include tourism businesses, employees working in conservation activities, suppliers of goods and services to the conservation sector, as well as the general public and society at large. The costs of conservation are typically borne by the public sector and by those owning and managing land. The uneven distribution of costs and benefits has implications for conservation and incentive schemes, with numerous stakeholders commenting on the need for those incurring the costs to be compensated by those who benefit.

6.1.3.2.5 The benefits of the Directives – responses to the online public consultation

The following questions in the online public consultation asked about the benefits of the Directives:

- Q12 asked the extent to which the Directives have added value to the economy (e.g. job creation, business opportunities linked to Natura 2000). 93% of individual respondents considered the Directives to have added significant value to the economy. By contrast, 79% of responses from businesses considered them to have no added value. Responses from other organisations were more mixed.
- Q13 asked the extent to which the Directives have brought additional social benefits (e.g. health, culture, recreation, education). Responses showed a similar pattern to Q12, with 94% of individual respondents but only 8% of business respondents considering them to have brought significant added value.
- Q20 asked about the significance of the different benefits of the Directives. The responses indicated that the strongest benefits were considered to relate to the conservation of wild birds, habitats and other species, with 47%, 47% and 45% of all respondents, respectively, considering these benefits to be significant or very significant. By comparison, other environmental benefits were rated as significant or very significant by 39% of respondents, social benefits by 36% and economic benefits by 34%.
- These results should be treated with caution. Q12 and 13 appeared in Part I of the online public consultation questionnaire and overall responses were heavily influenced by NGO campaigning in favour of the Directives. In contrast, responses to Q20 in Part II were heavily influenced by campaigning against the Directives.

6.1.3.2.6 Distribution of benefits

The sections above indicate that the Directives bring benefits to society and the economy as a whole through the conservation of sites and species and the delivery of ecosystem services. Particular economic sectors, such as tourism and the water sector, derive considerable benefit from the Directives. The distribution of costs and benefits may, however, be uneven, as those bearing the costs (such as landowners and developers) may not be the same as those who benefit most from implementation. This may help to explain the mixed results from the online public consultation.

6.1.4 Key findings

The implementation of the Directives gives rise to a wide range of costs and benefits. Both costs and benefits are substantial in value and, although a variety of studies have sought to value them at different scales, significant gaps remain.

The costs of implementation of the Directives include:

- The direct costs of designating, protecting and managing Natura 2000 sites have been estimated at EUR 5.8bn annually across the EU.
- Opportunity costs arise where the protection of sites and species restricts development, land use change and land management. This is highlighted as a concern by certain businesses, although costs are difficult to quantify and affect a very small proportion of all proposed developments in the EU. In many parts of the EU land managers are compensated for restrictions on agriculture and forestry.
- The costs of damage caused by protected species (e.g. large carnivores) and associated compensation payments can be significant at a local level but account for a small proportion of overall costs.

- The administrative burdens of compliance with the Directives' site and species protection rules are significant. These are analysed in the answer to question Y.7 (see section 6.7).

Implementation also delivers substantial benefits:

- Core benefits are the protection and improved status of habitats and species.
- Protection of sites and species helps to safeguard and enhance the delivery of ecosystem services with related benefits to wellbeing. These benefits have been estimated at EUR 200-300bn per year for the Natura 2000 network.
- Implementation brings benefits for local economies through job creation and tourism. Natura 2000 sites attract estimated annual expenditure on tourism and recreation of EUR 50-85bn.
- There are numerous estimates of the value of these benefits for particular sites.
- The distribution of benefits and costs is uneven and there is often a mismatch between those bearing the costs (such as owners and managers of land) and those benefitting (source as the tourism sector and society at large). This has implications for the design of compensation and incentive schemes.

6.2 Y.2 - Are availability and access to funding a constraint or support?

6.2.1 Interpretation and approach

This analysis examined the extent – if any – to which the availability of funding from the EU and from national, regional and local sources, affects the Directives' implementation, efficiency and achievement of objectives. In particular, it explored the extent to which EU and Member State funding meets the identified needs.

Funding plays a key role in meeting the objectives of the Directives, particularly given the significant levels of investment required for the Natura 2000 network. Funding is also needed for conservation measures outside the Natura 2000 network; the Favourable Conservation Status of EU protected habitats and species, for example, depends not only on the status of protected sites but also on the quality and features of the broader landscape (see section 5.3). The intervention logic in Section 2 highlights the importance of financial resources as inputs to fund the actions needed to meet the objectives of the Directives and deliver the required outputs, results and impacts. Both one-off and ongoing investment is required by authorities - often in partnership with conservation organisations and researchers – to carry out a range of activities essential for successful implementation of the Directives, as well as funding associated staff costs. Funding also has the potential to affect costs and administrative burdens, for example if implementation of the Directives is not accompanied by adequate financing to allow information gathering, advice, consultation and communication.

The main responsibility for implementing the Nature Directives, including securing sufficient funding, lies with the Member States. However, the implementation of the Directives can also be supported by EU funding (as specified in Article 8 of the Habitats Directive) and the requirement for Member States to produce Prioritised Action Frameworks (PAFs) is an attempt to improve the strategic allocation of EU financial resources to Natura 2000[217]. While all Member States receive EU funding for this purpose, there are, however, differences in the eligibility of Member States and regions to access the EU funds. Less developed EU regions (those with GDP per capita below 75% of the EU average) are generally eligible for wider funding opportunities – including for biodiversity - than more developed regions with higher GDP per capita.

The evaluation examined evidence to address the following judgement criteria:

- Funding needed to achieve objectives.
- Potentially available funding.
- Potentially available funding that is taken up.
- Funding availability affecting implementation and achievement of objectives.
- Funding availability affecting the efficiency of implementation.

Quantitative information assessing the available funding against the identified funding needs (i.e. the funding gap) is very limited. Similarly, no studies exist that clearly quantify the relationship between available funding and the effectiveness of the Directives. The existing evidence is primarily focused on the financing of the Natura 2000 network and there is little evidence available with respect to funding the implementation of the Direc-

[217] To strengthen the coordination and integration of financing for Natura 2000, the European Commission, together with the Member States, agreed that in 2014-2020 financing of the Natura 2000 network should be based on the PAFs. The development of the PAFs is based on the provisions of Article 8 of the Habitats Directive. PAFs are planning tools aimed at identifying required Natura 2000 conservation priorities and management measures as well as their related costs and potential financing sources, matching the former with the latter.

tives' provisions outside Natura 2000 (e.g. species protection measures, or measures for ecological coherence under Article 10 of the Habitats Directive). Finally, no studies are available that explicitly explore the effectiveness of the EU funds (e.g. difference in effectiveness between EU funds) with respect to the objectives of the Directives. The assessment, therefore, also draws on qualitative evidence and examples from the evidence gathering questionnaires and online public consultation, as well as the views expressed by stakeholders.

6.2.2 Main sources of evidence

The relevant evidence available, in order of importance, consisted of:

- A number of EU level assessments on the available opportunities for, and uptake of, EU co-financing. These assessments are of high relative importance as they are based on the analysis of official – and best available - data from all Member States. These include, for example, the assessment of funding needs for the Natura 2000 network, assessment of the uptake of EU funding for biodiversity during the 2007-2013 period, and assessment of opportunities for using EU funds for biodiversity in 2014-2020.
- European Court of Auditor reports on integration of biodiversity into key funds (e.g. ERDF).
- Member States' PAFs and fund-specific programmes (Operational Programmes (OPs) and Rural Development Programmes (RDPs)), some of which include quantitative estimates for funding sources and/or needs.
- The views of stakeholders responding to the evidence gathering questionnaire (80 responses to question Y.2 were received) and online public consultation. Additional information has also been provided under section 5.3 on the main factors contributing to or hindering progress towards achieving the Directives' objectives, and C.7 (see section 8.6), on the integration of co-funding obligations into different EU sectoral funds.
- Individual examples provided in the evidence gathering questionnaires and/or supported by documented case studies, which identified funding constraints and their effects on implementation and achievement of objectives.

6.2.3 Analysis of the question according to available evidence

6.2.3.1 EU studies

EU level estimates exist both for the needs for financing the Natura 2000 network and the allocations towards managing the network during the 2007-2013 EU financing period. According to these studies, EU financial allocations for Natura 2000 were between EUR 550–1,150m/ year (Kettunen et al, 2011). This estimate represents only 9-19% of the estimated financing needs of EUR 5.8bn /year to finance Natura 2000 (Gantioler et al, 2010).

When interpreting the above estimates a number of aspects need to be considered. Firstly, the estimate of financial allocation towards Natura 2000 mainly covers funding from the EU budget. It does not include funding provided by the Member States, including both the required co-funding to match the EU funds and other national, regional and local funding sources. However, the study concludes that it is unlikely that national funding would be able to cover the significant gap (80-90%) between the estimated total needs

and available EU allocations[218]. This conclusion is supported by the literature (EEB, 2011) and responses to the evidence gathering questionnaire from several Member States, who acknowledge EU funding as the key resource for financing the network.

Secondly, according to the studies above, the estimated funding needs are likely to be an underestimate, while the estimate for available funding might be overly optimistic. Gantioler et al. (2010) state that the estimated funding needs for managing the Natura 2000 network should be seen as an underestimate, given that information from most Member States focused on historic and/or budgeted expenditures rather than providing information on the future needs. For instance, the costs of achieving Favourable Conservation Status were captured only to a limited extent, and the costs of implementing marine Natura 2000 sites were under-represented. In addition, the estimated needs did not cover financing needs for the measures required to manage EU protected habitats and species outside the Natura 2000 network. According to Kettunen et al. (2011), the lack of transparency in tracking biodiversity related expenditure under the EU budget makes it difficult to determine the proportion that actually goes towards supporting the implementation of the Natura 2000 network. Consequently, the upper range estimate is likely to be an over-representation of the actual allocations. The study also notes that past experience suggests that part of the allocated support will not be realised in practice (see also evidence gathering questionnaire responses below). This further indicates that the available funding to support the implementation of the network falls behind from the actual needs.

Finally, while the existing evidence and stakeholder views conclusively highlight the significant role the EU LIFE fund plays in supporting the implementation of the Nature Directives, the estimated funding under LIFE to support biodiversity and nature in 2007-2013 was around EUR 750–837m (around EUR 107–120m/ year, actual and planned allocations respectively), as per Kettunen et al. (2011). This represented around 35-39% of the total LIFE+ budget[219]. In comparison, for the 2014-2017 funding period, the estimated planned LIFE contribution to biodiversity and nature will be around EUR 610m (around EUR 153m/ year[220]. This represents only 2.6% of Natura 2000 funding requirements alone, and LIFE also supports nature and biodiversity priorities outside the Natura 2000 network. In general, LIFE funding represents less than 1% of the total EU budget.

In addition to the gap in resources available, there are also other significant constraints to using the EU co-financing framework for Natura 2000, contributing to the financing gap. These include the following:

Lack of integration into different EU sectoral funds at national, regional and local level (e.g. earmarking): According to EU legislation (Kettunen et al, 2011; Kettunen et al, 2014a), Member States are not obliged to take up the opportunities for financing Natura 2000 from the EU budget. In practice, this leaves Natura 2000 to compete with a range of different policy goals, such as support to economic activities and infrastructure. This is commonly identified as a major constraint, and is pointed out in reports highlighting the lack of integration of biodiversity into the key funds (e.g. ERDF) (European Court of Auditors, 2011a; European Court of Auditors, 2013; European Court of Auditors, 2014a). (see also section 8.6)

Eligibility gaps: According to Kettunen et al (2011), there are relatively limited opportunities to use EU funds to establish and run management bodies, and to undertake ongoing management and monitoring of Natura 2000 sites, whereas activities linked to one-off investments and remaining designations are relatively well covered. Insights from an EU

[218] The estimate mainly refers to the Community funding (i.e. excluding Member States' share of the EU funding). The total overall financial contribution to Natura 2000 under the EU co-financing framework was estimated to be around 1.25 – 1.5 times the estimated range (assuming 25–50% co-financing from national funds). As for broader national funding, the study provides a review of national funding instruments in six Member States. Based on the above insights, national level funding is said to be inadequate, resulting in a lack of resources to alleviate the heavy reliance on EU funds.

[219] The 2007-2013 financial envelope for the implementation of LIFE+ was EUR 2 143m, as per Regulation (EC) No 614/2007.

[220] Commission Implementing Decision 2014/203/EU.

wide questionnaire in 2011 by the environmental NGO EEB, with respondents from 18 Member States, support the above conclusions. The results indicate that site management and monitoring suffer most from under-financing. According to EEB members, funding for staff capacity is also lacking, as is funding for implementing landscape scale measures to improve environmental quality in general in and around Natura 2000 areas (EEB, 2011).

Problems with uptake and absorption: There is a lack of capacity of national administrators and stakeholders to absorb EU funding even when available[221]. Also, the lack of know-how on accessing EU funds, as well as the high administrative burden (e.g. application process, reporting and auditing), hampers the uptake of EU co-financing opportunities (Kettunen et al, 2011; Kettunen et al, 2012; Kettunen et al, 2014a; Kettunen et al, 2014b).

Problems with coordination: The lack of coherence, coordination and planning in Member States in using different EU and national funding sources makes it difficult to form an overall picture of the actual financing needs and how these needs should be met. The development of PAFs should address this issue during the 2014-2020 funding period (Kettunen et al, 2011; Kettunen et al, 2012; Kettunen et al, 2014a; Kettunen et al, 2014b).

6.2.3.2 National studies

Only a limited number of national studies systematically analyse the adequacy of funding for the Nature Directives, or quantify the existing funding gap.

In Germany, a study by Rühs & Wüstemann (2015) estimated that the costs necessary to achieve German biodiversity targets - including targets related to the management of Natura 2000 - are EUR 3.26bn per year (See Box 28). Compared to the estimate of current spending amounting to EUR 1.3bn per year (Hampicke, 2013), this leaves a funding gap for financing biodiversity conservation in Germany of EUR 1.96bn per year (Rühs and Wüstemann, 2015). With respect to the Nature Directives, the German PAF estimates that the costs of establishment, maintenance, and management of Natura 2000 are around EUR 627m per year (BMUB and BfN, 2013), although no quantitative estimate is provided of the available funding to match these needs.

In Spain, a study by Moreno et al. (2013) estimated the costs of managing Natura 2000 to range between EUR 944–1,557m (EUR 69–114/ha), with the former representing the current level of investment and the latter the estimated spending required to ensure adequate management of the network across different regions in Spain in 2007. This national estimate was based on the actual investment in, and estimated needs for, the management of the Natura 2000 network. The difference between the estimated current investment and the desired level of spending indicates a funding gap of around EUR 0.6bn annually. The estimates by Moreno et al. (2013) are in line with the estimate provided by the Spanish PAF, which estimated funding needs of EUR 1,315m for Natura 2000 in 2012.

No further quantitative assessments of funding gaps are yet available[222]. However, insights from the evidence gathering questionnaire show that other Member States also describe a significant gap between the need for funding and the funding available.

Regardless of the funding gap, information and views at national level gathered via the evidence gathering questionnaire indicate that the Nature Directives have played a significant role in providing continued funding for nature conservation over time (see Table 19 below). The importance of EU funding in supporting the implementation of the Nature Directives was explicitly noted, for example, by stakeholders from Estonia, Belgium (Wal-

[221] Problems with the capacity to absorb funding are known to hinder the uptake of EU funding across different national funding priorities, not only to Natura 2000.
[222] England LIFE+ Improvement Programme for England Natura 2000 Sites (IPENS) project is identifying and attempting to quantify funding gaps that currently exist at individual site level.

lonia), Bulgaria, Finland, Germany and Hungary. In some cases, the nature Directives' requirements have been used to defend spending on nature during budget cuts. For example, in the Netherlands, representatives of the nature authorities interviewed during the National Mission suggested that without the Directives nature expenditure would be EUR 200m less per year. Unfortunately, however, several Member States foresee budget cuts at national level for biodiversity financing from the EU funds during the period of 2014-2020, including financing biodiversity conservation measures under EAFRD (see responses to the evidence gathering questionnaire).

Finally, some evidence exists for the role of public funding in securing the implementation of nature conservation policies. In the Netherlands, the recent decentralisation of the responsibility - and the accompanying public funding - for managing existing nature conservation areas (e.g. Natura 2000 sites) from the central government to the regions was expected to be accompanied by a net budget cut of EUR 80m in the coming 5–10 years (van Stratum and van Liefland, 2013). It was argued that this cut could be overcome by acquiring additional financing for nature conservation through a combination of charitable funding and market-based mechanisms. However, the assessment of possible funding flows for nature conservation (including innovative financing) indicates that compensating the cut in public funding with other funding sources will be insufficient, with a gap of EUR 30m/year remaining in the required level of financing (van Stratum and van Liefland, 2013).

Box 28 Assessment of financial costs to achieve German biodiversity targets

Rühs & Wüstemann (2015) identified the financial costs necessary to achieve the German biodiversity targets. Based on the National Biodiversity Strategy (BMUB, 2013) and the Quality Status Reports of the Habitats Directive (BfN and BMUB, 2014), a conservation programme was developed containing land use changes for six ecosystem/land use types: forests, arable land, grassland, peatland, wetland and dry habitats. In addition, results from a comprehensive review of literature focusing on nature conservation targets in Germany allow further specification of the conservation program.

The total financial needs are estimated to total EUR 3.26bn per year (EUR 396/ha) including EUR 1.4bn necessary for restoration and EUR 1.86bn for maintenance measures. Of the EUR 3.26bn per year, EUR 88m (EUR 195/ha) is necessary for peatland and EUR 65m (EUR 365/ha) for wetland conservation. The yearly costs for arable land and forest conservation would be EUR 903m (EUR 223/ha) and EUR 355m (EUR 243/ha) respectively. With estimated annual costs of EUR 1.76bn (EUR 924/ha) and EUR 90m (EUR 454/ha), grassland and dry habitats conservation are highly cost-intensive.

As for the level of current spending on biodiversity, the authors of the study refer to Hampicke (2013) who estimated spending to be around EUR 1.3bn per year in 2010. Comparing the total costs of EUR 3.26bn with the current spending of EUR 1.3bn shows that the funding gap for nature conservation in Germany adds up to EUR 1.96b per year.

While no explicit assessment of the funding needs related to the Nature Directives or the Natura 2000 network is made, the study includes many habitat types covered under the Directives and can thus be considered indicative of the scale of cost related to the implementation of the Directives' objectives.

Box 29 Availability and access to funding from EAFRD for the Nature Directives

A high proportion of EU protected habitats and species depend on agricultural management or are associated with managed forests. This results in a high relative importance of EAFRD as a tool for financing the management of terrestrial Natura 2000 sites and EU protected habitats and species. Whilst in principle several of the EAFRD funded measures can be used to support the implementation of the Directives (Kettunen et al, 2014b), the agri-environment measure is the most significant source of funding in all Member States.

In 2014-2020, managing authorities must allocate at least 30% of their RDP funding to measures that support environment and climate change objectives, including agri-environment. In 2014-

2020, the allocation of total RDP expenditure to priority area 4, which includes Natura 2000 needs, ranges from 85% (UK England) to 20% (Spain, Canary Islands) in the RDPs planned in the EU-28[223]. It is not possible to draw any conclusions on the likely impact on Natura 2000 or EU protected habitats and species from the allocation of expenditure to the priority area 4 measures, as the scope and targeting of agri-environment schemes is very wide, and the payment for areas of natural constraint does not include any specific land management requirements to benefit biodiversity conservation, though many Natura 2000 farmland areas will be eligible for the payment (N2K Group, 2016). For example, in Finland the current concern is that the limited agri-environment budget is almost entirely allocated to schemes aimed at water quality that will deliver little for biodiversity, based on experience from the previous period (Laukkanen and Nauges, 2014). Similarly, RDPs in Portugal and Spain (Fernández-Velilla et al, 2015) have been criticised as taking little or no account of Natura 2000 funding priorities as identified in the PAFs.

For the 2014-2020 period, Member States had the option to transfer up to 15% of direct payment funds from CAP Pillar 1 to Pillar 2, thereby increasing the budget for rural development priorities, including species protection and Natura 2000. Alternatively Member States could transfer up to 15% of funds from Pillar 2 to Pillar 1 (and some could transfer up to 25%), thereby increasing the budget for direct payments. Whilst Pillar 1 measures are funded entirely from the EU budget, Pillar 2 measures funded from EAFRD require co-funding from Member States. A transfer from Pillar 2 to Pillar 1 therefore also decreases the amount of Member State funding allocated to rural development. In 2015-2020, 11 Member States have taken the opportunity to transfer funds to increase available funding for rural development, a total of €6.383bn, while five Member States have reduced their budgets for rural development by transferring funds into Pillar 1[224][225] [226]. The net result for 2015-2020 will be just over EUR 3bn moving from Pillar 1 to Pillar 2 (although countries can change their transfer rates after 2017, and transfers were already allowed in 2014).

6.2.3.3 Responses to evidence gathering questionnaire and National Missions

In the targeted evidence gathering questionnaire, 80 responses were received to question Y.2 on financing of the Directives, the majority of which (78) expressed an opinion on funding. 59 respondents also provided qualitative evidence or examples to support this opinion, with a minority (21) providing quantitative evidence. 61 respondents provided some form of evidence on funding sources and needs.

79% of respondents (63 responses) stated that (lack of) funding is a constraint for successfully implementing the Directives, while 48% (38 responses) expressed the view that funding supports the implementation. These responses were provided by representatives of different stakeholder groups. Building on the broader evidence base (above and below), these two responses can be viewed as interlinked (i.e. representing two sides of the same coin) reflecting the views that the Directives allow for more funding to be devoted to conservation activities (support), however the current level of funding is commonly considered to be insufficient (constraint).

The evidence gathering questionnaire was supported by missions to 10 Member States, including follow-up interviews with different relevant stakeholders who had already replied to the targeted evidence gathering exercise. These interviews were based on the questionnaire structure and designed to further explore the responses received.

A number of recurring issues were identified in both sources across all / most of the stakeholders. Table 19 provides further detail and concrete examples of the issues listed here.

[223] Excludes Spanish and French national RDPs and French RDPs outside metropolitan France. AgraEurope. 2015. Interactive CAP 2014-2020 implementation dashboard: Percentage of total RDP expenditure by priority area (2014-2020). Available at : https://www.agra-net.net/agra/agra-europe/cap-monitor/article480867.ece accessed 8.10/2015.
[224] France, UK, Germany, Belgium, Denmark, Netherlands, Czech Republic, Greece, Romania, Latvia and Estonia
[225] Poland, Slovakia, Hungary, Croatia and Malta.
[226] 29 January 2015 Member States' CAP direct payment decisions revealed. By Paul Hutchison, Agra Europe.

- There is a strong consensus among all stakeholders that funding for implementing the Directives is insufficient and that lack of funding is one of the key constraints to successful achievement of the Directives' objectives. However, their reasons fordrawing this conclusion varied.
- Business sector stakeholders (e.g. agriculture and forestry) expressed the view that the level of compensation for restrictions and/or opportunities foregone is insufficient.
- Member States differed in what they regard to be the most important sources of funding. Some Member States (e.g. Sweden, Netherlands and Germany) reported that funding mostly originates from national sources. For example, in the Netherlands, in both the 2007-2013 and 2014-2020 periods, approximately 10% of the funding was / is covered by EU funding and 90% funded by State and Provincial budgets[227]. In comparison, a number of other Member States (e.g. Romania, Slovenia and Greece) emphasise the importance of EU funds. The above is partly explained by the differences in the eligibility of Member States and regions to access the EU funds, whereby less developed EU regions are generally eligible for wider funding opportunities than more developed regions (e.g. broader access to the Structural and Cohesion Funds). A number of Member States also referred to a decrease in national funding due to the financial crises, further increasing the importance of EU funding (e.g. Greece and Latvia).
- There seems to be a strong consensus regarding the positive and highly important role of LIFE in funding the implementation of the Directives, including several successful contributions towards achieving conservation objectives. Similarly, there seems to be a broad agreement on the limitations of LIFE funding, including limited overall funding available, difficulties in finding co-funding for LIFE funds, the administrative burden associated with applying for and running LIFE projects and lack of resources to develop proposals and/or deal with administrative burden. Dedicated national structures to facilitate access to LIFE funding (e.g. national funds for co-financing) can be useful. In Poland, for example, this structure is reported to have led to visible increases in project uptake[228].
- Finding match funding for EU funds is a recurring problem mentioned by stakeholders, and similar difficulties apply to finding alternatives to EU funding.
- Several Member States and stakeholders identify gaps in the EU funding made available for the Directive and/or biodiversity. These include: funds to increase staff capacity, and funding to support conservation of certain species and/or management measures (e.g. restoration, landscape scale measures, monitoring and ongoing management).
- Access to EU funding is seen as a barrier by the business sector. Here, administrative burden and penalties deter stakeholders from seeking funding, with some ineligible for funding (e.g. municipal forests, forest owners and private companies).

Questions S.3 (see Section 5.3) and C.7 (see Section 8.6) reach similar conclusions. S.3 finds that the (lack of) availability of public funding has probably had the most influence on the implementation of the Directives, while C.7 highlights the lack of integration of biodiversity into different EU funds at the national and regional level.

[227] In 2007-2013, EUR 1bn funding available in total, with about EUR 100m from EU funds, EUR 400m from the state budget and EUR 500m from provincial budgets (Leneman et al, 2009). In 2014-2020, EUR 280m of EUR 2,905m will be covered by EU funding. Both result in about 10% funding originating from the EU budget.
[228] National fund for Environment Protection (2015), program LIFE (in Polish) http://www.nfosigw.gov.pl/oferta-finansowania/srodki-zagraniczne/instrument-finansowy-life/ accessed 17.02.16

Table 19 Synthesis of views on funding as a support or constraint in reaching the objectives of the Nature Directives, based on the evidence gathering questionnaire.

Support		Constraint	
Type of support identified	**Example**	**Type of constraint identified**	**Example**
Availability of EU funding to support implementation.	**Estonia**: EU funding considered key in enabling restoration (e.g. mires) and large-scale management of habitats. EU funding is estimated to account for 75% of overall expenditure on nature conservation in the country. The importance of EU funding in supporting the implementation of the Nature Directives was also explicitly noted, for example, by stakeholders from Belgium (Wallonia), Bulgaria, Finland, Germany and Hungary.	Failing to allocate EU funds towards implementation of the Directives at national level, e.g. lack of earmarking and monitoring spending.	**Belgium (Flanders):** During 2007-2013, 67% of the investment under Pillar 2 of CAP was invested in improving the economic situation, with only 17% (EUR 112m) invested in environment. Of this investment, only 2% was related directly to Natura 2000, although additional species protection measures were financed. (Vlaamse Overheid, 2013). **Several countries:** NGO respondents to the evidence gathering questionnaire stated that in 2007-2013 EAFRD payments contributed little to very little to nature conservation objectives in Cyprus, France, Ireland, Luxembourg, Spain and Italy on the whole, although the positive effect of some schemes was noted. In the 2014-2020 period, there have been reductions in agri-environment scheme budgets in a number of Member States, highlighted in the evidence gathering questionnaire from NGOs in Hungary, Poland, Sweden and Slovenia. The Hungarian NGOs stated that the agri-environment budget is cut by 25% from the previous period, with no funding available for the development of Natura 2000 management plans, concluding that it is very likely that the budget will not allow the Natura 2000 and PAF objectives to be achieved. In Poland, the NGOs stated that the 2014-2020 agri-environment budget has been halved compared to the previous period, with funding moved into the Areas of Natural Constraints (ANCs) measure.
Support in securing funding from national sources.	**Netherlands:** it was estimated in the national mission that without the Nature Directives expenditure would be EUR 200m less per year.	Incompatibility with other financing streams (EU / national).	A number of Member States, e.g. Denmark and Finland, highlighted the role of environmentally harmful subsidies in hindering the successful implementation of the Directives. **Spain**: A recent assessment showed that farms within Natura 2000 areas and farms with extensively managed habitats, such as dryland crops and wooded pasture, received less funding support from CAP Pillar 1 direct pay-

Support		Constraint	
Type of support identified	**Example**	**Type of constraint identified**	**Example**
			ments, compared to farms outside Natura 2000 with the same types of cultivation, due to the historical allocation to farmland with higher productivity (World Wide Fund for Nature (WWF) and SEO, 2010). Spain must move to flat-rate payments at the regional level by 2019.
Important and positive role of LIFE, e.g. as catalyst for other funding sources.	Different stakeholders across several EU Member States expressed the view that LIFE has played an important role in implementing the Nature Directives (e.g. Belgium (Flanders), Bulgaria, Croatia, Cyprus, Chezh Republic, Finland, Greece, Ireland, Italy, Luxemburg and Sweden). **Greece:** Piraeus Bank is running a LIFE project called 'LIFE-Stymfalia' in Lake Stymphalia until the end of 2017(SPA/SAC GR2530002). LIFE-Stymfalia aims to restore Lake Stymphalia, while also creating a business scheme that will generate profits through utilising reed biomass removed from the wetland and other unexploited biomass from agriculture residues. In other words, LIFE-Stymfalia aspires to establish a sustainable management and financing scheme for the protected wetland, by converting the area's natural biomass into a marketable product and creating economic benefit. This financing model may help co-funding in other Natura 2000 sites in Greece.	Limited overall financing, low co-financing rates and/or high administrative burden under LIFE.	Different stakeholders across several EU Member States expressed this view (e.g. Belgium (Flanders), Cyprus, Czech Republic, Finland, Germany and the UK).
Dedicated national co-funding to match EU funding.	**Poland:** the country facilitated the uptake of EU funding through the establishment of a national fund to provide co-funding for environmental projects. This increased the uptake of LIFE funding.	Lack of / issues with national funding, including co-funding to support EU funds.	Lack of required co-funding to match EU funds is considered a barrier to accessing EU funding. This was explicitly mentioned, for example, by Belgium (Flanders), Greece, Hungary, Malta and Slovenia. Using national payments to support Natura 2000 management actions are (possibly) regarded as state aid in the context of CAP, as stated by France. This limits national co-funding and hinders the uptake of EU funds.

Support		Constraint	
Type of support identified	**Example**	**Type of constraint identified**	**Example**
Strategic use of PAFs.	**Estonia**: the costs for habitat restoration and management are well planned in the PAF. This has been useful in securing needed funding for Natura 2000. Similar views were expressed by others e.g. Belgium (Flanders) and Bulgaria.	Failed opportunities in the use of PAFs.	Several Member States identified failures in the use of PAFs to coordinate funding for Natura 2000. These included the following: PAFs are too ambitious and, therefore, unrealistic in the current form; PAFs are only a compilation of existing management and conservation measures from the Natura 2000 management plans with limited strategic planning; the timing of developing PAFs is too late to have any impact on allocations from EU funds at national level, sometimes combined with limited consultation of stakeholders; and the political power of PAFs is not considered strong enough to overcome competition between different priorities at national level.
		Gaps in certain types of activities eligible for EU funds.	A range of gaps was identified by several stakeholders across Member States. These included, in particular, increasing staff capacity and financing the management of certain species and/or management measures (restoration, landscape scale measures, monitoring, ongoing management). Support to forest conservation from the EU funds also appears limited (N2K Group, 2016) (Fenton et al, 2008).
		Insufficient funds for / insufficient level of compensation payments; varying approaches across Member States to calculate compensation.	Different stakeholders (e.g. agriculture and forestry sector representatives) across several EU Member States expressed this view. Rising land prices seem to aggravate the situation in several Member States. **Ireland:** Rising land prices make voluntary approaches such as agri-environment schemes less likely to succeed, as they are competing with more profitable land uses. According to the NGOs, farmers with land in Hen Harrier SPAs in Ireland claim that their designated land is worth (for sale) only EU 1,000 per acre, while adjoining undesignated land is worth at least EUR 4,000 per acre (for sale) for forestry[229]. This creates a financial incentive to afforest land. The afforestation programme has been temporarily halted in the SPA areas designated for Hen Harriers until the Hen

[229] http://www.irishexaminer.com/viewpoints/analysis/farmers-urge-fair-deal-on-hen-harrier-land-311387.html accessed 17.02.16

Support		Constraint	
Type of support identified	**Example**	**Type of constraint identified**	**Example**
			Harrier action plan has been finalised Some respondents identified a need for guidance on how to calculate the compensation for the EAFRD Natura 2000 measure that properly takes account of the Natura 2000 specific restrictions and the baseline (now including greening). For example, some Italian regions used widely diverging approaches to calculate payments, setting different payment rates for similar habitat types (LIFE farenait, 2015)..
		Administrative burden related to EU funding.	The administrative burden associated with EU funds is seen as a barrier to accessing EU funding by different stakeholders across Member States (e.g. Belgium (Flanders), Bulgaria, Czech Republic, Estonia and Finland). EAFRD is regularly considered cumbersome - and therefore unattractive - for both beneficiaries and payment administrators. Also, running LIFE projects is believed to be accompanied by unnecessarily heavy administrative burdens. Finding co-funding for LIFE and ERDF schemes can be a barrier for small scale stakeholders (e.g. small local level stakeholders).
		Lack of capacity and/or human resources to access or absorb EU funding.	**Poland:** The 2007-2013 RDP offered three agri-environment packages for biodiversity. Packages 4 and 5 offered a set of sub-schemes for management of endangered bird species and natural/semi-natural habitats within and outside Natura 2000 sites. Package 3 offered a simplified scheme for extensive grassland management. Many farmers in Poland gave up on these agri-environment packages, as they required an expert assessment and were associated with a long wait for funding, instead choosing the simplified package which was much easier to implement[230]. The simplified package supported mowing management which was not appropriate for some EU protected habitats and species; for example the first cut date fell within the nesting period of some wet grassland breeding birds. The uptake of the targeted package inside Natura 2000 was 10% of the target by 2014, while uptake outside

[230] A. Krupa, K. Krupa Potencjalne negatywne oddziaływanie pakietu 3. programu rolnośrodowiskowego na siedliska przyrodnicze będące pod ochroną.

Support		Constraint	
Type of support identified	**Example**	**Type of constraint identified**	**Example**
			Natura 2000 reached 74% of the target. **Slovenia:** According to the national nature authority, the analysis of the 2007-2013 achievement of agri-environmental measures shows that by 2012 the objectives of the conservation of Natura 2000 were achieved in only 11% of sites where measures could have been be applied[231]. Reasons included, for example, lack of promotion of the schemes and limited knowledge to allow uptake. In the last period of 2007-2013, a rise in the inclusion in agri-environmental measures specific for Natura 2000 was observed, however, total payment for measures was still lower than 10% of all possible sources for agri-environmental measures in the Natura 2000 sites, and lower than 1% of all financial sources used for agri-environmental measures annually. Similar views were expressed by others, e.g. Belgium, Bulgaria, Denmark and Greece.
		Lack of stakeholder eligibility for EU funds.	Agriculture and forestry stakeholders stated that the ineligibility of certain stakeholders to benefit from funding (EAFRD) was a hindrance (e.g. Cyprus, Germany, Slovakia and France). **Germany**: authorities responsible for public forest management in Germany highlighted the fact that publicly owned forests are not eligible for funding under the CAP, presenting a major obstacle to Natura 2000 management. This is primarily due to the eligibility definitions applied by the regional government rather than EU legislative restrictions.

[231] http://www.natura2000.gov.si/fileadmin/user_upload/LIFE_Upravljanje/A1_A2_Agriculture_Summary.pdf accessed 17.02.16 and http://www.natura2000.gov.si/fileadmin/user_upload/LIFE_Upravljanje/A1_A2_Analiza_kmetijstvo.pdf accessed 17.02.16

6.2.3.4 Results from the online public consultation

A dedicated question on financing the implementation of the Directives was included in Part II of the online public consultation (Q25). It sought opinions on how well the funding needs for implementing the Directives are being met, reflecting both the sufficiency and effective use of funding. Most respondents (77%) agreed that there was insufficient funding for implementing the Directives. Of these, 63% thought that the funds available were being used efficiently, compared to 14% who believed that they were inefficiently used. Only 2% thought there was sufficient funding which was being efficiently used.

A number of other questions in Part II of the online public consultation also provided insights into public perceptions of funding of the Directives. Q18 identified 15 possible factors that had contributed to successful implementation of the Directives. Dedicated funding was one of these factors, with 37% of all respondents to this question stating that it had a moderate to major (14% and 23%, respectively) contribution to successful experiences in implementing the Directives. By contrast, 59% of respondents considered dedicated funding to have made little or no contribution to the observed success (13% and 46%, respectively). This is somewhat contrary to the evidence gathering questionnaires, which indicated that the availability of (public) funding is likely to have had a significant influence on the implementation of the Directives (see section 5.3). However, the outcome of Q18 might simply reflect stakeholders' views that the level of funding is in general insufficient, limiting its role in cases of successful implementation.

Similarly, Question 19 (Q19) asked about the extent to which the same 15 factors limited progress towards the Directives' objectives. Almost three-quarters of respondents (74%) believed that insufficient funding was significantly restricting progress. The majority of agriculture and forestry, and fisheries and hunting, and nature and environment stakeholders stated that insufficient funding significantly restricted progress (85%, 72% and 70% of the respondents, respectively). The respondents from industry (construction, extractive industry, transport) were more divided on the role of funding, with 42% considering it a non-restrictive factor and 39% a significantly restrictive factor (see Table 20 below).

Table 20 Responses to Q19 on whether insufficient funding limits progress towards reaching the objectives of the Nature Directives

Respondent	Not restricting progress	Somewhat restricting progress	Significantly restricting progress
Agriculture and forestry	5%	7%	85%
Angling, fish farming, fishing and hunting	10%	12%	72%
Nature and environment	6%	20%	70%
Construction, extractive industry and transport	42%	13%	39%
Others	6%	20%	68%

Q31 explored the contribution of the Nature Directives to improving a number of identified key aspects of nature conservation, over and above what could have been achieved through national or regional legislation. With respect to added value, 39% of the respondents stated that the Directives have made a moderate to significant contribution to conservation financing (14% and 25% respectively). While only 8% considered the Directives to have made no contribution, nearly half of all respondents (49%) held the view that the Directives had made only a minor contribution to funding over and above what could have been received through national and regional legislation. The emphasis on 'mi-

nor contribution' seems to indicate that several respondents believe the support from the EU level towards funding the implementation of the Directives to be limited. This is contrary to the views expressed in the evidence gathering questionnaire, and is likely to have been influenced by campaigning against the Directives, which influenced responses in general to Part II of the online public consultation (see below).

Analysis of the comments under the final open question of the online public consultation indicated that national governments and NGOs consider the Directives to be seriously underfunded, and that an increase in both funding and human resources is required to secure their successful implementation in the future. In this context, a number of respondents indicated that there was a need for a specific EU fund dedicated to Natura 2000. On a somewhat similar note, a significant proportion of comments received from the agriculture and forestry sector - while stating that the Directives put unreasonable constraints on land owners and users - emphasised that there was not enough compensation for income lost or damage caused by the Directives.

With a few exceptions, the results of the online public consultation support the evidence available, including stakeholders' views gathered via the evidence gathering questionnaire. In interpreting the divergence between responses, it needs to be noted that responses to Part II of the online public consultation were influenced by campaigning against the Directives (see sections 3.6 and 6.1.1 of the public consultation report).

6.2.4 Key findings

Availability of funding is both a constraint and a support for the implementation of the Directives:

- Evidence provided by stakeholders in the evidence gathering questionnaires, as well as EU and national studies, highlights that access to (EU) funding, in particular LIFE funds, plays an important role in supporting the implementation of the Nature Directives. However, the lack of available funding and/or access to funding is considered to be a major constraint.
- The national responses to the evidence gathering questionnaire indicate that the Directives and related co-funding from the EU budget have enhanced the delivery of overall funding required for nature conservation in the EU, and that without them, finance for site, habitat and species conservation would have been considerably reduced. This is particularly the case in many of the Southern, Central and Eastern European Member States, where EU funds have brought new finance for conservation actions in pursuit of the objectives of the Directives. This point is made by many stakeholders in the evidence gathering questionnaire, and it is also reflected in the results of the online public consultation.
- Based on the evidence gathering questionnaires and online public consultation, all groups of stakeholders emphasised that both a severe shortage of funding and different constraints in uptake of funding (EU funding especially), inhibit progress towards the objectives of the Directives. This view is supported by the existing EU and national assessments, the former indicating that the estimated EU co-funding for biodiversity during the 2007-2013 period represented only 9-19% of the estimated financing needs for managing the Natura 2000 network. While the EU funding is not foreseen to cover all Natura 2000 financing needs (as per Article 8 of the Habitats Directive), the assessment concludes that that national funding is unlikely to be able to cover the significant gap (80-90%) between the estimated total needs and the available EU allocations.
- The availability of public funding is likely to have had a significant influence on the implementation of the Directives (see Section 5.3). For example, funding constraints on authorities have affected the establishment of the Natura 2000 network, as well as other important actions, such as establishing incentive/compensation measures for landowners, stakeholder engagement, management planning, permitting and enforcement measures.

- Both the responses to the evidence gathering questionnaire and the existing EU and national studies highlight funding shortages across all Member States. These are particularly apparent with respect to the ongoing management and monitoring of the Natura 2000 network, which relies heavily on additional finance for site protection and management activities. A further issue (highlighted in question S.3, see section 5.3), is that nature authorities and associated public management bodies are also affected by serious under-financing (e.g. in relation to staff costs). Evidence presented under section 5.3 indicates that the latter can have an impact on implementation, e.g. delays in site designation, management planning and permitting. This can further increase the costs of conservation actions in the future (e.g. resulting in an increased need for expensive restoration activities) and lead to higher costs and burdens for some stakeholders (e.g. knowledge gaps, as described under section 6.7).
- The existing studies and stakeholder views highlight the significant role that EU LIFE funds play in supporting the implementation of the Nature Directives. The LIFE programme is seen by many stakeholders as very efficient, with a good absorption rate of funds from EU to national level and impact. However, its funding is less than 1% of the total EU budget, and it is generally considered inadequate for current funding needs.

In conclusion, the existing evidence strongly indicates a significant gap in the financing of the Nature Directives. There are grounds to believe that the funding gap is significant enough to prevent achievement of the objectives of the Directives without a very significant increase in funding. The findings from the evidence gathering questionnaire reinforce the conclusions of previous studies on EU funding for the Directives, such as that by Kettunen et al (Kettunen et al, 2011) which identified shortages in finance for the Natura 2000 network.

6.3 Y.3 - If there are significant cost differences between Member States, what is causing them?

6.3.1 Interpretation and approach

This question involves a comparative assessment of the costs of implementing the Directives across the EU. As well as the overall costs, it is important to consider if these costs differ significantly between Member States and establish the reasons for any such differences.

Cost differences may arise because of differences in needs between Member States, variable implementation of the Directives and their requirements, or because of variations in the efficiency of implementation. Understanding the reasons for cost differences will help to clarify variations in financing needs across the EU and to identify opportunities for more cost-effective implementation. If there are differences in costs between Member States, this could mean that the Directives have uneven burdens and economic impacts, suggesting important policy implications. For example, if costs are high in some parts of the EU, there is a danger that resource constraints and cost burdens could lead to incomplete implementation of the Directives and/or opposition from business and other stakeholders. One of the principal reasons for environmental legislation at EU level is to ensure common rules and a level playing field, thereby facilitating the working of the internal market. In some sectors, such as international ports, where the costs of complying with nature legislation are significant and competition is high, significant differences in costs could have implications for competition and the level playing field within the EU.

At a minimum, differences in costs would be expected to lead to differences in financing needs and challenges, including the need for EU co-financing. In terms of the intervention logic in section 2.3, they could mean that greater levels of inputs are required to deliver the actions needed to meet the objectives of the Directives. In assessing differences in costs, it is helpful to distinguish between the types of costs identified in question Y.1 (see section 6.1) and the impact of these costs on different groups. For example, variations in the costs of implementing the Natura 2000 network may raise significant challenges for public funding and co-financing in some parts of the EU, while significant differences in private sector compliance costs and administrative burdens could impact negatively on businesses.

The main judgement criteria considered in the analysis were:

- Levels of costs (investment costs, management costs, administrative costs, opportunity costs) in different Member States.
- Differences in unit costs (e.g. costs per hectare, cost per development proposal).
- Factors affecting cost differences (e.g. levels of implementation, number of cases, labour costs, time inputs, time delays etc.).

The analysis examined the quantitative evidence for cost differences. As this was limited in extent, qualitative evidence and stakeholders' views were also examined.

6.3.2 Main sources of evidence

The most important sources of evidence are EU studies by Gantioler et al. (2010) examining the costs of implementing the Natura 2000 network, the Ecosystems (2014) report on Article 6(3), and the Farmer et al (2015) study on the time taken to complete Appropriate Assessment (AA) and associated permitting processes.

The evidence gathering questionnaire collected views and evidence from 56 stakeholders, including a range of EU organisations, national authorities, business interests and NGOs.

The evidence provides some insights into the reasons for cost variations. However, the available literature quantifying and analysing cost differences is limited, and questionnaire responses provided mostly qualitative evidence. While the evidence provides a broad consensus on some of the main reasons for cost differences, detailed quantitative assessments are lacking.

6.3.3 Analysis of the question according to available evidence

6.3.3.1 Evidence of management costs

Gantioler et al (Gantioler et al, 2010), reporting on the results of a questionnaire survey of 27 Member States on the costs of implementing the Natura 2000 network, found considerable variations in average annual costs, ranging from EUR 14 per hectare in Poland to more than EUR 800 per hectare in Cyprus, Luxembourg and Malta. These higher cost estimates result in part from the scale of fixed infrastructure envisaged relative to the area of the network in these small countries, suggesting that economies of scale are a significant issue. The higher cost estimates are also influenced by the fact that smaller sites in proximity to urban areas face higher per hectare costs, given existing pressures. They may also reflect differences in the interpretation of the exercise, as some estimates were based on actual planned expenditure, while others estimated the expenditure that would happen if the resources were available. This resulted in high cost strategies being proposed in some Member States (involving, for example, high levels of land purchase, e.g. Cyprus) compared to more conservative programmes in others.

Average costs per hectare were found to be higher for established Member States (EU-15) than for newer Member States (EU-12).

In absolute terms, by far the largest overall cost estimate was for Spain, at EUR 1.56bn per year, reflecting both the large size of the network and the relatively high unit cost estimates applied by that country.

Differences in cost estimates between Member States may vary widely by type of site, being highest in areas which require highest levels of intervention and management (e.g. in agricultural areas in North-Western Europe) and which face greater pressure from development and disturbance (e.g. islands in Southern Europe). Based on the results of the survey and a review of wider literature, Gantioler et al found that the costs of completing and managing a network of protected areas depend on a number of factors:

- The size of the sites (costs per hectare are lower for bigger sites than for small ones).
- Accessibility / proximity of the sites to urban areas (increased pressure on the site tends to increase costs).
- Income (costs of protected area management tends to be higher in higher income countries, reflecting wage and land costs).
- Maturity of the network and past expenditure, which can reduce the need for future expenditure.

Different conservation strategies might also affect the level of costs. Several Member States (e.g. Bulgaria, Czech Republic, France, Italy, Malta, Slovakia and the UK) indicated that land purchase is only considered in rare circumstances, and that forming management agreements with private landowners is the norm. However, in others (e.g. Cyprus, Lithuania, Luxembourg, Romania and Sweden), purchase of land played a more

important strategic role, often being seen as the best means of achieving the required objectives of Natura 2000.

A major cause of variations in the cost estimates reported by Gantioler et al. came from differences in the interpretation of the questionnaire by Member States, and particularly the degree to which responses were constrained by the realities of existing resource limitations. The guidance stated that the purpose of the questionnaire was to obtain an estimate of the financial resources required to complete and effectively manage Natura 2000 at land and sea. However, in practice, respondents interpreted this somewhat differently, with some providing data that built mainly on current and/or effectively planned expenditures (e.g. Belgium) and others providing estimates of what would ideally be spent if the resources were available (e.g. Cyprus, France, Germany, Hungary, Luxembourg, Malta and Sweden). Only Spain provided two estimates – one which reflected planned expenditures with the available resources, and a second estimate (60% higher) with what would be desirable if the resources were available.

The analysis found that diverse national circumstances (site type, land use, location, ecological status, pressures, labour and wage costs, and management strategies), the level of current data, and different cost assessment approaches and methodologies, explain differences in the cost estimates between Member States and reveal issues for future attention.

Gantioler et al concluded that their findings were broadly consistent with existing global literature on the determinants of protected area costs. For example, Balmford et al (2003) found that key determinants of costs of protected areas globally were site size (costs per hectare go down with increasing size), population density (costs per hectare go up with increasing density) and GNP (costs per hectare go up with increasing output). Similarly, when examining the costs of 78 small protected areas managed by Yorkshire Wildlife Trust in the UK, Armsworth (2011) showed that the size of a nature site area is the most important determinant of management costs. The costs per ha were found to decline with site area, such that management of a 40 ha site would be expected to incur only twice the costs of a 10 ha site. Also from the UK, data from the Royal Society for the Protection of Birds (RSPB) suggest that wetlands that are smaller than 100 ha cost up to 13 times more to manage per hectare than sites larger than 100 ha (Ausden, 2007).

Tucker et al (2013), in a study to assess the costs of ecosystem restoration under Target 2 of the EU Biodiversity Strategy, found that labour and machinery accounted for a large proportion of habitat restoration costs. As costs of labour and fuel vary widely within the EU (Eurostat reports up to a factor 25 difference in average hourly labour costs between European (NUTS 1) regions), the cost of restoration measures for habitats can be expected to show significant regional variation. On this basis, the highest cost adjustments were applied to Denmark, Sweden and Luxembourg. The study found that the lowest cost strategy for meeting restoration targets in Europe would focus on those habitats with lowest unit costs for restoration (forests, heathland and tundra, mires, lakes, rivers and saltmarshes). Other habitats, such as arable ecosystems, permanent crops, improved grasslands, sclerophyllous vegetation (Mediterranean scrub/ woodland), inland marshes, dunes and beaches have higher restoration costs. Consequently, average unit costs may be expected to be relatively low in Member States with concentrations of habitats with lower restoration costs (e.g. Finland and Sweden). The distribution of restoration costs varied widely, depending on how restoration actions were prioritised. Overall, however, the highest absolute costs were estimated for France, Spain, Germany, Italy, Poland and the UK, reflecting the absolute size of their land areas, as well as income levels.

Box 30 Factors affecting restoration costs in Estonia

The evidence gathering questionnaire returned by the Estonian Ornithological Society comments on the factors affecting the costs of habitat restoration in the country. Due to limited experience of restoration these costs are usually very high, but could be expected to fall in the future as a result of innovation and learning. This may require consultation with foreign experts, or building new administrative processes that may take time and incur costs due to the learning curve. For

example, there are no good examples of amphibian tunnels under new roads in Estonia. While the first tunnels were built in 2014, they have not yet started to work. The Road Administration now plans to bring in Danish experts to evaluate the situation, with a view to planning new improved tunnels. In other Member States where amphibian tunnel building is more developed, the planning and building is less costly. By contrast, Estonia already has significant experience with raised bog and river restoration, reducing the cost and timing of these works considerably. Restoration is very costly compared to maintenance, but also varies according to the situation in the Member State. For example, restoration of a grassland that still has a natural seed bank is much cheaper than restoration of one that must be planted or seeded with natural plants.

Source: Evidence gathering questionnaire, Estonian Ornithological Society.

6.3.3.2 Evidence of administrative costs

Sundseth and Roth (Ecosystems Ltd, (2014), when considering evidence of costs and administrative burdens with respect to AA under Article 6(3) of the Habitats Directive, suggested that there are likely to be significant differences in implementation costs, concluding that:

'It is clear that the differences in application of Article 6(3) across the countries and regions can have a major influence on how the Article 6(3) permit procedure is implemented in practice and this in turn can impact on the nature and extent of possible problems that arise during this implementation.'

Administrative capacity, guidance, training, sharing of information, and consistent frameworks were found to be important in reducing costs. In some countries (e.g. Austria, Czech Republic, Slovenia, Spain, and Sweden), it was reported that an overall lack of understanding of, or willingness to accept, the Article 6(3) procedure persists among certain authorities and/or sectors. This has caused difficulties in implementation, leading to more frequent delays, inconsistencies in application and frustration among developers, authorities and NGOs. The report found this to be a particular problem at a lower administrative level (especially in countries with a federal structure) and in countries where the competent authority is not the nature authority. In such cases, a lack of skills, resources and basic understanding of the requirements of the Article 6(3) procedure renders its application more problematic and inefficient. Encouraging a more constructive dialogue between the plan and project promoters and their counterparts in the nature authorities, was emphasised as one of the key factors to improve the AA procedure.

Businesses reported variations in the competency and capacity of authorities with respect to Article 6(3) procedures, with some taking a long time to respond to requests for a permit, or taking an overly precautionary approach and requesting excessive information. Some countries and regions have decided to impose stricter rules than foreseen under the Directives for certain types of development activities, for example (in a small number of instances) by issuing a complete ban on wind farms in Natura 2000 sites. On the other hand, NGOs argued that variable application of the rules also causes differences in costs – in some (unnamed) countries AA is not applied in certain sectors (e.g. forestry/ farming/fisheries) despite the risk of potentially significant impacts on Natura 2000 sites.

Farmer et al (2015), in a case study examining the reasons for differences in time delays between Member States in undertaking AA, identified similar factors to those highlighted in the Ecosystems report. While aspects such as the size and complexity of projects, processes of communication and the quality of data and AA are project specific, others may result in differences in costs between Member States. These include the capacity and expertise of permitting authorities, procedures for appeals, and the degree of coordination with EIA and SEA procedures. The report identified some examples of good practice in improving the efficiency and timescales involved in AA (

Box 31).

Box 31 Examples of good practice in enhancing efficiency and timescales for AA

Simplified planning processes and strategic spatial planning
In Denmark, a strong strategic planning system has helped to remove potential conflicts between proposed developments and Natura 2000 sites at an early stage, i.e. prior to project identification and permit application. For example, the system has helped to identify potential sites for onshore and offshore wind farms, thereby avoiding potential clashes with Natura 2000 sites.

Technical guidance and protocols
In England, the marine Maintenance Dredging Protocol (MDP) was established to streamline the process of obtaining approval for maintenance dredging activities by ports that could potentially affect Natura 2000 sites. An MDP document is developed, whose data are periodically revised in the light of monitoring the interest features of designated Natura 2000 sites in the area, carried out on a six-yearly reporting cycle. This ensures that individual maintenance dredge proposals have all the necessary supporting information to be swiftly assessed, and do not require extensive and time-consuming information gathering and consultation.

Ensuring fit-for-purpose AA
In England and Wales, the Major Infrastructure and Environment Unit was established to facilitate positive cooperation between developers and statutory consultees. Its purpose is to overcome quality issues arising from lack of communication between the two parties, which may relate to a number of elements of both project design and assessment development. The unit plays an early risk management role to identify potential conflicts between projects and Natura 2000 sites. It ensures collaboration between all parties to support resolution of issues, and introduces a new Evidence Plan process for agreeing requirements up-front, providing greater clarity for developers on the evidence requirements.

Appeal procedures
In the Netherlands, the Crisis and Recovery Act (Crisis en herstelwet) was set up to speed up appeal procedures. The Act entered into force in 2010 and was intended to counteract the impact of the economic crisis. The Act has reduced the time taken for objection and appeal procedures, as well as the number of occasions requiring appeal procedures.

Source: (Farmer et al, 2015).

6.3.3.3 Evidence of opportunity costs

Kaphengst et al (2011), in their assessment of the opportunity costs of biodiversity conservation in the EU, did not assess differences in opportunity costs between Member States. However, they noted that the main opportunity costs of the Natura 2000 network include foregone development opportunities, foregone opportunities for land use change such as agricultural improvement or conversion, and foregone output through constraints on land management. Opportunity costs can, therefore, be reasonably expected to be highest in those areas where there is greatest development pressure, which are most productive for agriculture and forestry, and where the price of land is high.

6.3.3.4 Responses to the evidence gathering questionnaire and national missions

56 respondents to the evidence gathering questionnaire answered this question, with most providing an opinion or qualitative assessment, and only four providing quantitative evidence. 46 respondents stated that there are cost differences between Member States, with 38 identifying the specific factors causing those differences across the EU and 29 identifying specific factors affecting costs in a particular Member State.

The most frequently cited reasons for cost differences were as follows:

Table 21 Reasons for cost differences

Reasons for cost differences	Responses
Population density, land use pressures, land prices and opportunity costs	12
Conservation status and restoration need	10
Labour costs	8
Knowledge base in the Member State	8
Concentration of protected habitats and species	7
Overall size of Natura 2000 area in the Member State	6
Level of ambition	6
Differences in implementation approaches, administrative structures, interpretation of rules	6
Levels of management intervention	5
Uncertainties, disputes, delays, information costs caused by national implementation approaches	5
Average size of sites (small sites have relatively higher costs)	4
Geographical factors (affecting travel costs, trans-boundary issues, seasonal timing of interventions)	4
Capacity and degree of reliance on consultants/ foreign expertise	3
Strategies for land purchase and compensation	3

An example of the influence of national approaches to implementation on costs within a Member State, was given by Eurelectric and Energy UK (see Box 32).

Box 32 Costs of national implementation – monitoring of coal-fired energy plant in the UK

Operators of large UK coal plants were required by the England and Wales Environment Agency to undertake a national scale assessment of the impact of emissions of SO_2 and NOx from their individual operations under the Pollution Prevention and Control re-permitting process, as a result of the requirements of Article 6(3) of the Habitats Directive. This requirement was applied to all existing coal plants, with the individual and combined impacts required to be assessed on each Natura 2000 site on the UK mainland (Brooke et al, 2006).

UK coal plant operators did not agree with this requirement on the basis that: (1) they believed that existing coal plants are not 'plans or projects' within the definition of Article 6(3), and (2) they believed that it was not the intention of the Directive to regulate long-range impacts arising from emissions to air, which are covered by other legislation (e.g. the Environmental Impact Assessment Directive (85/337/EEC), the National Emissions Ceilings Directive (2001/81/EC), the IPPC Directive (2001/8/EC), the Gothenburg Protocol and the Large Combustion Plant Directive (2001/80/EC) (and their successors)).

The total costs associated with the assessment exercise, including scoping discussions with the Environment Agency and conservation agencies, performing the initial assessment, and follow-up discussions through the determination process, were estimated at around GBP 50,000 (EUR 70,000) per station. An improvement condition was imposed on nine coal-fired power stations which had not taken the Article 4(4) limited operational hours option under the Large Combustion Plant Directive to set up and operate a meteorological and deposition monitoring network in relation to the Habitats Directive assessment. The ongoing costs of participation are put at around GBP 15,000 (EUR 21,000) per year for each installation. It is argued that these costs are significant, even though they represent only a small proportion of operating costs.

Eurelectric and Energy UK state that they are not aware of any other Member States requiring national scale assessments of acid and deposition impacts of coal-fired power station under the Habitats Directive. They argue that this is an overly onerous interpretation of the Habitats Directive requirement by the UK regulators, deriving from a lack of clarity within the Directive itself. They call for further guidance relating to the definition of 'plans or projects' under Article 6(3), the range of impacts to which the Directive should apply, and the definition of the scope of the key legal terms 'significant effect', 'not adversely affect', and 'integrity of the site'.

Source: Evidence gathering questionnaire responses by Eurelectric and Energy UK

Responses to the online public consultation

Q23 of the online public consultation asked respondents for the cause of any inefficiency with respect to the Directives and their implementation. This question appeared in Part II of the questionnaire, in which a large proportion of responses expressed negative views about the Directives. The answers indicate that inefficiencies are perceived to arise both from the Directives themselves and the manner of their implementation. However, implementation of the Directives at national, regional and local level is perceived to be a greater cause of inefficiency than the wording of the legislation itself, or its enforcement at EU level. For example, 'how the Directives were implemented nationally' was seen by 70% of respondents to cause inefficiency 'to a large extent', compared to 51% stating that 'how the directives are written' caused inefficiency 'to a large extent'. In contrast, 'interaction with other laws and policies' was only seen by 27% as causing inefficiency 'to a large extent'. The view that the greatest inefficiencies are caused by implementation at the national, regional and local level supports its place as an important factor in cost differences between Member States.

6.3.4 Key findings

The evidence (from both the existing literature on management and administrative costs and the responses to the evidence gathering questionnaire) demonstrates that there are significant cost differences between Member States related to application of the Nature Directives, and that these are caused by a range of economic, environmental and geographical factors.

Quantitative comparisons of costs between Member States, although few, point to significant cost differences, both in absolute costs and in unit costs (e.g. cost per hectare of Natura 2000 sites). However, direct comparisons are made difficult by differences in estimation methods.

The main existing quantitative assessment is the 2010 Gantioler et al. assessment, which found wide variations in a range of one-off costs (e.g. land purchase and compensation payments) and annual management costs. The study suggested that the main drivers of cost differences include the overall extent of the Natura 2000 network, the degree of ambition applied to its implementation, economic factors (e.g. land and labour costs), national circumstances (e.g. type and size of site, land use, location, ecological status, pressures), management strategies, and variations in the level of current data. However, although common guidance was provided, a major cause of variation was differences in estimation methods and scope of costs (e.g. total or incremental costs, and actual, planned, required or aspirational expenditures). Some Member States included large estimates of the costs of land purchase, while most assumed that this would account for only a small proportion of costs. Other studies highlight several similar cost drivers. Qualitative answers to the evidence gathering questionnaire support these findings.

Studies of the administrative costs related to permitting under Article 6 of the Habitats Directive reveal a scarcity of quantitative data, but suggest that variations in capacity and implementation between Member States, as well as procedures for appeals and the resolution of disputes, can cause cost differences.

6.4 Y.4 - Can any costs be identified (especially regarding compliance) that are out of proportion with the benefits achieved? In particular, are the costs of compliance proportionate to the benefits brought by the Directives?

6.4.1 Interpretation and approach

This question compares the costs of meeting the requirements of the Directives with the benefits achieved. There is a particular focus on compliance costs, i.e. the costs to businesses, landowners and authorities in meeting the requirements of the Directives.

As well as considering the balance between the overall costs and benefits of implementing the Directives, it is important to examine whether their implementation results in specific practices which are disproportionately costly because they incur high costs for relatively little benefit. Such examples might provide opportunities to improve efficiency. In such instances, understanding if disproportionate costs arise from the provisions of the Directives themselves, or as a result of inefficient implementation, is critical.

Like the other efficiency questions, this question relates to the relationship between the inputs employed in pursuit of the objectives of the Directives and the results and impacts achieved (as defined in the model of intervention logic in section 2.3), but also needs to take account of wider indirect and unintended costs (such as opportunity costs, and administrative burdens) incurred.

The main judgement criteria used to address this question related to the presence of the following types of quantitative or qualitative evidence:

- Estimates of the value of costs exceeding those of benefits, for certain actions or places.
- Examples where the Directives require action with significant cost but little or no apparent benefit.
- Examples where the Directives give rise to very high costs but only moderate benefits.

Relevant examples may relate to particular requirements of the Directives, particular cases or specific sites. The question may require some degree of judgement from the analyst/ stakeholder as to whether costs are reasonable and proportionate to the benefits.

6.4.2 Main sources of evidence

Evidence available includes:

- Overall studies valuing the costs and benefits of the Directives at EU level (Gantioler et al, 2010; ten Brink et al, 2011).
- EU studies providing more qualitative evidence of the efficiency of implementation (e.g. the review of implementation of Article 6(3) of the Habitats Directive (Sundseth and Roth, 2013)).

- National studies of the costs and benefits of Natura 2000 in certain Member States (e.g. Germany and the UK).
- Numerous studies of costs and benefits at individual sites.
- Evidence gathering questionnaires and National Missions, examining the costs and benefits of implementation and highlighting examples of disproportionate costs. 80 responses to this question were received, of which 55 provided qualitative evidence and examples, with a further 16 providing quantitative evidence.
- The online public consultation, which considered the benefits and costs of implementation of the Nature Directives.

These sources quantify the relative costs and benefits of the Directives to varying degrees and at different scales. Where direct monetary comparisons of costs and benefits were not available, assessment of proportionality required a degree of judgement. Where estimates were available for costs but not benefits, assessment of proportionality was aided where these costs were put in context, e.g. where information was provided about costs per hectare of habitat, per breeding pair of a species, and/or percentage of overall project costs.

6.4.3 Analysis of the question according to available evidence

6.4.3.1 EU studies of costs and benefits

Studies at the EU, national and local levels all suggest that the benefits delivered by the Natura 2000 network greatly exceed the costs of their implementation and management. For example, at the EU level, the overall benefits of the network have been estimated at between EUR 200-300bn annually (ten Brink et al, 2011), while the annual costs of full implementation and management of the network have been estimated at EUR 5.8bn.

Some care is needed, however, in interpreting these estimates, as they derive from different bases. The ten Brink et al benefits estimates, for example, relate to the overall benefits of the Natura 2000 sites assessed in gross terms, rather than the added benefits delivered by protection and management under the Directives. By contrast, the Gantioler et al estimates refer to the costs of designation and management of the sites. While some of these costs might continue to be incurred in the absence of the Directives (through national conservation objectives), many would not. On the other hand, in the absence of the Directives, we might expect only a gradual erosion of the benefits that the sites deliver over time.

Evidence which assesses the net costs and benefits of the Directives against a counterfactual ('policy-off') scenario is therefore lacking. This is, perhaps, unsurprising given the complicated policy space within which the Directives work and the associated difficulties in assessing their added value in quantitative terms.

From a qualitative standpoint, the Ecosystems Ltd report (Sundseth and Roth, 2013) on Article 6(3) of the Habitats Directive found that, on the whole, implementation is working well in most Member States, and that despite problems of implementation creating costs and administrative burdens, many of these have been resolved over time. The study found that there was a general lack of data on the costs and benefits of Appropriate Assessment (AA), making it impossible to confirm the claims made by certain sectors that permitting procedures generate high costs or burdens. The authors noted that all permitting systems incur costs, arguing the need both for better data and for clearer definitions of disproportionate costs. This would help in the assessment of costs as either reasonable or disproportionate. National and local studies of benefits and costs

Jacobs (2004) estimated that Scotland's Natura 2000 sites have an overall benefit:cost ratio of around seven over a 25-year period. This means that, overall, national welfare benefits are seven times greater than the national costs and represent good value for money. Benefits were found to be dominated by non-use values, and costs would exceed benefits if these were not taken into account. The authors estimated the marginal benefits and costs of the Natura 2000 designation itself, stating a benefit:cost ratio of 12:1, although without detailing how this figure was reached.

In England, the Department for the Environment, Food and Rural Affairs (DEFRA, 2015), as part of an assessment of costs of its regulations, estimated the benefit:cost ratio of biodiversity legislation at 7:1, based on estimates of the benefits of Sites of Special Scientific Interest (SSSIs), as well as estimates of the benefits of CITES regulations to business. The direct cost to business was estimated at GBP 32m (EUR 45m) per annum (of which approximately 75% are to agriculture, forestry and fisheries), while direct benefits to business were put at GBP 10m (EUR 14m) per annum, indicating an annual net cost to business of GBP 22m (EUR 31m). Costs to other parties (mostly government) were estimated at GBP 113m (EUR 158m) annually, with wider benefits to society estimated at GBP 970m (EUR 1,358m) per annum. The report estimated that 84% of costs of biodiversity policy arose from EU legislation.

A study by GHK (2011) on the benefits of SSSIs formed the main basis for the DEFRA estimates. This used a choice experiment survey to estimate that the public in England and Wales is willing to pay GBP 956m (EUR 1338m) annually to secure the benefits that the sites deliver, a benefit cost ratio of almost 9:1. All terrestrial Natura 2000 sites are also designated as SSSIs, and the Natura 2000 network comprises the majority of the SSSI network by area. The study also found that Natura 2000 status confers additional benefits compared to the national SSSI designation, through higher levels of protection, some additional funding and added profile.

Similarly, a number of studies in Germany have also examined the public's willingness to pay for biodiversity through implementation of Natura 2000 and national biodiversity targets. This has been found to be significantly higher than cost estimates (Meyerhoff et al, 2012; Wüstemann et al, 2014). For example, the study by Wüstemann et al found a benefit:cost ratio of approximately 2.8:1 for a nature conservation programme including Natura 2000 and habitat management measures in support of the National Biodiversity Strategy.

6.4.3.2 Local studies

Local studies also demonstrate that the benefits of Natura 2000 sites can greatly exceed the costs of management. The following box gives some examples.

Box 33 Comparisons of costs and benefits at Natura 2000 sites

Plaine de la Crau, France: Hernandez and Sainteny (2008) estimated the overall benefits of this Natura 2000 site at EUR 182/ha/year, and net benefits at EUR 142ha/year.

Roerdal, Netherlands: Costs of nature management in the period 1994-2000 amounted to EUR 2.1m, delivering total business, recreational and amenity benefits of at least EUR 4.5m to businesses, homeowners and the general public (Wijnen et al, 2002).

Wierdense Veld, Netherlands: A study found that the benefits of hydrological restoration and emission reduction measures exceed the costs. Major costs included the creation of buffer zones around the Natura 2000 area (resulting in loss of income and relocation of activities) as well as emission control measures. However, this was more than offset by the benefits of enhanced room for farm development. Total costs amounted to EUR 20.2m while the total benefits were EUR 23.1m, indicating a net benefit of EUR 2.83m (Reinhard et al, 2014).

Monte Alduide, Navarre, Spain: A study estimated the benefits of a conservation plan for the Natura 2000 site at EUR 7.3m/year, compared to annual costs of EUR 0.45m, suggesting a benefit: cost ratio of 17:1 (Moreno et al, 2013).

Other studies have examined the benefits and costs of restoring particular habitats, demonstrating that the benefits of restoration and conservation often greatly exceed the costs.

Box 34 Benefits and costs of habitat conservation and restoration

Peatlands: Numerous studies on the cost:benefit ratio of peatland restoration show that the social benefit is substantial and that costs can be saved, in particular to avoid climate damage and the costs of use of drained peatland for biogas plants (cited in Naturkapital Deutschland - TEEB DE, 2012). Based on the studies, it can be assumed that preserving the peatland and habitat types of the Directives is economically highly efficient (Naturkapital Deutschland - TEEB DE, 2012).

Grassland: Matzdorf et al. (2010) investigated the costs and benefits of conserving high nature value grasslands and calculated a 2:1 minimum ratio. Part of this grassland is protected under the Habitats Directive and is particularly threatened by conversion to cropland. The conservation of grassland is more cost-effective than conversion into cropland.

Floodplains: Measures to conserve and restore floodplains, which could be implemented to improve the coherence of Natura 2000, among other things, could achieve a benefit:cost ratio of between 1:1 and 3:1 (Grossmann et al, 2010; Grossmann, 2012a; Grossmann, 2012b). This will, inter alia, avoid flood damages and increase water's cleaning power, to achieve WFD goals.

Marine habitats: EU and international studies have shown that protected areas provide a variety of economic benefits for fisheries, including enhanced yields, improved recruitment, recovery of stocks, restoration of a fish stock's natural age structure and higher quality products, and can therefore help to reverse the effects of overfishing (Carstensen et al, 2014; Guidetti et al, 2014).

Natural Capital Restoration, UK: The Natural Capital Committee State of Natural Capital Report (2014) provided an analysis of the benefit:cost ratios of a range of natural capital investments. These were estimated at 5:1 for a woodland planting programme, 4:1 for a catchment case study, 2:1 to 3:1 for salt marsh restoration, and up to 9:1 for inland wetland restoration projects.

Evidence from the Netherlands demonstrates that, overall, the benefits of the national programme to reduce Nitrogen emissions to Natura 2000 sites exceed the costs, although costs may exceed benefits at certain sites.

Box 35 Engbertsdijksvenen, the Netherlands – costs of controlling Nitrogen emissions

A major element in the Netherlands' implementation strategy is a programme called the Integrated Approach to Nitrogen (PAS), which aims primarily to reduce nitrogen deposition in sensitive Natura 2000 areas. An analysis by the Agricultural-Economic Institute (LEI) (Leneman et al, 2013) shows that the effects of this programme on national social and economic development range from largely positive to neutral (see also question Y.5). However, this report also indicates that the costs and benefits are unevenly distributed.

For example, at the Natura 2000 site, Engbertsdijksvenen, the analysis found that within a 5km radius of the site, the costs exceeded the benefits by about EUR 5.1m. A significant portion of these costs resulted from the need to introduce measures on approximately 250 ha of agricultural land outside the Natura 2000 site in order to improve the quality of the nature within the site, with a large impact on local agriculture. This large local impact generated resistance from local stakeholders.

Broekmeyer et al (2015) argued that as a result of these costs and in the light of local resistance, it will be difficult to realise the objectives to conserve raised bogs at the site. In preparing the Natura 2000 management plan, the province and the local stakeholders have agreed to investigate potential alternative approaches. They believe that this example emphasises the importance of engaging stakeholders and the public with the Netherlands' responsibility to conserve European protected species and habitats, as well as the feasibility of the proposed measures in achieving a Favourable Conservation Status.

Source: Evidence gathering questionnaire submitted by Ministry of Economic Affairs, Netherlands.

6.4.3.3 Responses to the evidence gathering questionnaire

80 respondents answered this question (Nature Protection Authority – 19; Other Public Authority – 8; Private Enterprise/Industry – 7; NGO – 25; EU-level organisation -21). The majority provided opinions (76 respondents) or examples (55), while 16 responses provided quantitative evidence. The responses reveal a split in opinion: 33 respondents expressed the view that the Directives give rise to disproportionate costs, while 39 argued that they do not. In general (but not in all cases), business representatives and land management interests tended to argue that there are disproportionate costs, while environmental NGOs tended to argue that costs are less than or proportionate to benefits. A mix of responses was received from Member State government representatives.

The most frequently cited examples of measures giving rise to disproportionate costs included:

- Specific examples of high costs of protection of individual species (e.g. birds, amphibians) at particular sites (e.g. mining and development sites) (15 responses).
- Poor or delayed implementation at national level, giving rise to uncertainties, fines and delays (14 responses).
- The need to protect widespread species and habitats listed in the annexes, diverting resources from national priorities (12 responses).
- Administrative burdens, costs of surveys and permitting resulting from Article 6(3) (eight responses).
- High costs of habitat management at particular sites (five responses).
- High costs of derogations (four responses).
- High opportunity costs (e.g. restrictions on forest operations, extraction) (four responses).
- Costs of pollution control / catchment management in agriculture (three responses).
- Monitoring costs (three responses).
- Information costs, caused by failures in mapping/ evidence gathering/ strategic planning (three responses).

Many examples cited by stakeholders relate to the costs of protection of individual species. The following examples quantify only the costs of action, without valuing the benefits, and therefore involve only subjective judgements that costs are high relative to the benefits achieved.

Box 36 Costs of species action

Great Crested Newts and other widespread species in the UK
According to DEFRA, the Home Builders Federation gave the example of a development where offsite translocation was refused, and the methods to protect Great Crested Newts onsite cost GBP 200,000-300,000 (EUR 280,000 to 420,000), excluding interest or loss of return on the proposed construction, in the context of a peak count of 23 Newts.

The European Aggregates Association (UEPG) noted that Great Crested Newts can impose costs on quarry operators, as they colonise standing water in active quarries. This can delay quarrying operations and require costly mitigation measures. In a quarry in northern England, small numbers of Great Crested Newts were found in pools that have formed against active faces, delaying and restricting quarrying operations. Consultants were retained to prepare a mitigation scheme at a cost of GBP 30,000 (EUR 42,000) and additional costs were incurred in the acquisition of land,

construction of mitigation pools, hibernaculae and terrestrial habitat (GBP 18,000 or EUR 25,000), as well as fencing (not estimated). These costs appear to be relatively modest compared to those associated with some other developments. For example, UEPG also reports that a study by the consultancy ADAS found that surveys for protected species costs the UK property industry around GBP 15m (EUR 21m) per year. Two recent road-widening projects spent GBP 315,000 (EUR 441,000) and GBP 415,000 (EUR 581,000) on Great Crested Newt surveys and mitigation (equating to GBP 21,000 or EUR 29,000 and GBP 7,400 or EUR 10,400 per actual Newt found, respectively).

During the UK National Mission, the Department for Transport indicated that it expects the cost of surveys of protected species affected by phase 1 of the proposed HS2 rail link between London and Lichfield to amount to GBP 40m (EUR 56m). With the likelihood of the presence of certain species already established, the main aim of the surveys will be to establish their locations, populations and abundance. This may lead to further significant investments in mitigation measures for Great Crested Newts, bats and other species. It was noted that the money invested in surveys could achieve considerable biodiversity benefits if instead invested directly in conservation measures.

At the same meeting, HM Treasury reported the results of a PhD study that estimated the mitigation costs for Great Crested Newts in the UK. These were found to range from GBP 100,000 to 215,000 (EUR 140,000 - 300,000) across 18 projects. From these figures it was estimated that the UK incurs mitigation costs of GBP 59-125m (EUR 83-175m) per year on this species alone.

BirdLife Europe argues that the UK's problems with Newts and other species arise because of a failure to assess and define a Favourable Conservation Status at national level, or at the spatial levels appropriate for different species. Without a clear definition of a Favourable Conservation Status and the actions required to achieve it, a precautionary approach must be adopted based on a goal of no net loss, in order to prevent significant loss. BirdLife argues that steps to assess and define a Favourable Conservation Status for European Protected Species at national and other appropriate spatial scales, are a prerequisite for their effective conservation.

Black Grouse, Sallandse Heuvelrug, Netherlands
Since the 1970s, much money has been invested in the management of Sallandse Heuvelrug National Park (a Natura 2000 site) for the benefit of Black Grouse, a declining species. As a result of genetic impoverishment, poor habitat quality and possibly climate change, the species has continued to decline, such that in 2012 only two male birds were counted. A long-term investment of time, effort and money has been unsuccessful, and the costs appear to have greatly exceeded the benefits. However, some stakeholders argue that, despite the decline in Black Grouse, other species and heathland habitats have benefited from the action taken.

Widespread species in Germany
The BDI (Federation of German Industry) argues that species protection measures often give rise to disproportionate costs under the Directives. For example, assessments of the impact of infrastructure developments such as road schemes, often involve case-specific analysis of the likelihood of increased deaths of particular species. The BDI argues that this is bureaucratic, gives rise to legal uncertainties, and is applied to all protected species irrespective of their conservation status, therefore giving rise to costs that are disproportionate to benefits. It can also result in disproportionately costly mitigation measures, such as relocation, construction of fences/barriers, the provision of alternative nesting sites, and expensive ongoing monitoring. These actions are often aimed at reducing impacts on widespread species such as Sand Lizards, Natterjack Toads and bats.

Hen Harriers and Freshwater Pearl Mussels in Ireland
The Department of Agriculture, Food and the Marine (DAFM) comments on the large costs involved in protecting certain species. For example, approximately 160,000 hectares are designated as Hen Harrier SPAs in Ireland, supporting 120-150 pairs of the species. While this species is considered to be at critically low numbers, intervention is costly, with over 1,000 ha designated per pair. Similarly, a species such as the Freshwater Pearl Mussel, which has a relatively narrow habitat range in Ireland, but the quality of which is influenced by wider catchment areas, could result in disproportionate cost implications where land management interventions are required over large areas with the objective of protecting relatively small, albeit important habitats.

European Flying Squirrel in Finland
COPA Finland argues that, overall, the Directives are working quite well, but that they have led to excessive protection of certain species, such as the European Flying Squirrel. The questionnaire response claims that this species, listed in the Annexes of the Directives but not endangered,

requires almost all of the resources for protection of endangered species in Finland.

Common Wall Lizard and Natterjack Toad in France
The questionnaire submitted by CEMBUREAU states that these two species, listed in Annex IV of the Habitats Directive, are strictly protected despite being common in France, with the Wall Lizard particularly common in the south of the country. As a result, companies have to obtain a derogation permit (Article 16 of the Directive) and implement expensive offsetting measures for non-endangered species. The costs of those derogations are significant (including investigations, collecting data, mapping, biodiversity assessments) and can cause lengthy delays, as the French authorities do not set a specific deadline for derogation permits. Such permits are often subject to challenge, with a high risk that they will be overturned, potentially affecting the survival of the companies concerned.

Source: Evidence gathering questionnaires submitted by DEFRA (UK), UEPG, BirdLife Europe, Ministry of Economic Affairs (Netherlands), BDI (Germany), DAFM (Ireland), COPA-COGECA, CEMBUREAU; National Missions.

Some perspectives by the Irish nature authorities on the factors that may give rise to disproportionate costs are presented in the following box.

Box 37 Costs of implementation in Ireland

In its questionnaire return, the National Parks and Wildlife Service (NPWS), Ireland, argued that where successful interventions have delivered positive implementation of the Directives, this is generally good value for money.

However, in some instances, the Directives may demand compliance that is very costly and will not necessarily result in a positive outcome. This is often the case in terms of species management, where species may be suffering at the edge of their geographical range (e.g. Corncrake in the Shannon Callows, where outside flooding is having an influence) or where water quality issues are impacting on historical populations (e.g. Freshwater Pearl Mussels in some of the 27 catchments in Ireland, where populations are low). The NPWS argues that restoring such populations may be prohibitive and resources may be better invested in other areas in the species' range.

There are particular difficulties where a very high proportion of the landscape hosts Annex habitats or species. In such cases there can be a substantial burden on the local population. For example, the Aran Islands, off Co Galway, are almost entirely composed of a priority habitat, limestone pavement. This inevitably adds constraints to the provision of housing, infrastructure and facilities for both islanders and the tourists which are a critical part of the island economy.

One of the challenges is to ensure that AAs are proportionate to the project, the sensitivities of the site involved and the risks that the former poses to the latter. A large proportion of Ireland's farming enterprises are typically small in scale, and evidence about their interactions with Natura 2000 sites is often lacking. This can mean that the costs of an AA may be disproportionate to the risks involved. This topic is of particular significance in Ireland at this time, when it appears that there could be a requirement to carry out an AA on agri-environment plans for some 30,000 - 50,000 farmers, a task which is beyond the resources of both individual farmers and the national authorities.

There is a perception within rural communities, in particular within farming communities, that the costs of compliance with the Nature Directives at farm level outweigh the benefits. It is argued that designation of land as an SAC or SPA can lower its potential value compared to eligibility for other grant aid, such as forestry. In such cases, hostility can emerge towards the species which it intended to conserve. Finding a balanced solution is difficult, as other agri-environment schemes, while available, may not be as attractive as some of the alternatives.

Costs may also arise where implementation of the Directives affects activities which are covered by other, existing regulations. The business organisation IBEC highlights a recent example concerning the loading of petrol road tankers at Ireland's oil refinery at Whitegate, in Cork harbour. Operators must be licensed by the Irish Environmental Protection Agency (EPA) and must hold a Volatile Organic Compounds (VOC) Permit. In the most recent round of permit renewals (2013), licence holders were asked to conduct an AA of the impact of their loading operations and VOC emissions on local bird species. This was a very costly exercise that IBEC argues delivered no environmental

benefits beyond those already guaranteed by the licence conditions. When queried, the EPA stated that their interpretation of Habitats Directive was the reason for requiring an AA.

Source: Evidence gathering questionnaires from NPWS, IBEC.

The questionnaires also highlight examples of specific plans and projects which are perceived to have resulted in disproportionate costs. The following cases illustrate that the causes of disproportionate costs are often complex and may be influenced by national approaches to implementation, as well as the interaction of the Directives with other legislative and permitting requirements.

Box 38 Costs associated with plans and projects

Vuosaari Harbour, Helsinki, Finland: The questionnaire from the European Sea Ports Organisation (ESPO) states that, although there are good practice examples, port development projects have suffered significant overall increases in costs, complex approval procedures and resulting delays that are not always justified by environmental benefits. An example is the Vuosaari Harbour development at the port of Helsinki, where numerous appeals by neighbours opposed to the scheme, including in the EU Court of Justice (CJEU), added some 10 years to the process. These delays resulted from a variety of environmental permitting processes, not just the nature legislation. Because of the SPAs bordering the port, the railway connection was submerged in an underground tunnel, the longest railway tunnel in Europe solely for freight purposes. ESPO argues that this had excessive cost implications.

Falmouth Harbour, UK: ESPO also submitted a case study of the Falmouth Harbour dredging project in Cornwall, South West England. The initial application to dredge the approach to the docks was submitted in 2004 but has yet to receive permission, following a series of disputes focusing on the environmental impact of the scheme. An AA decision issued by the Marine Management Organisation in January 2011 was unable to conclude that there would be no adverse impact on the integrity of the Fal and Helford SAC. The Falmouth Harbour Commissioners argue that the process of implementation of the Directives lacks balance, has created uncertainty, is unfair, and has failed to take account of the economic aspects of sustainable development. Their estimates of the costs involved include those of EIA (GBP 500,000, or EUR 700,000), subsequent consultancy and legal fees (GBP 250,000 or EUR 350,000), economic studies and the Port Masterplan (GBP 250,000 or EUR 350,000) and a proposed Maerl re-layering trial. However, it is unlikely that all of these costs result from the Habitats Directive. It is expected that the Maerl mitigation measures, when agreed, will add GBP 3-5m (EUR 4.2-7m) to the cost of the dredging. The Port Masterplan study estimated that the project – which is considered essential for Falmouth to attract cruise ships – will add approximately 850 jobs and GBP 70 million (EUR 100m) in Gross Value Added (GVA) to the local economy.

Via Baltica motorway, Poland: World Wide Fund for Nature (WWF) Poland argues that this case illustrates that inadequate implementation of the Nature Directives can often be the cause of excessive costs. After years of discussions about a route which would have damaged the Natura 2000 site of Rospuda Valley, a decision was taken in 2009 to re-route the motorway. Had the decision been taken earlier, WWF argues, the savings in time and resources would have been considerable. An independent road designer proposed an alternative scheme with a reduction in capital costs of EUR 17 million compared to the proposal which would have damaged the Natura 2000 site.

Netherlands: Rijkswaterstaat estimates the costs of nature compensation as a percentage of the costs of infrastructure projects. These are put at 0.9% (roads), 0.3% (rail) and 3.2% (water). In 2007-11 this amounted to EUR 33m (roads), EUR 22m (rail) and EUR 4m (water). These figures – which exclude mitigation measures – suggest that the overall costs of compensation constitute a small proportion of infrastructure costs.

Source: Evidence gathering questionnaires submitted by ESPO, WWF Poland, Rijkswaterstaat (Netherlands).

A similarly diverse range of reviews was expressed by stakeholders interviewed during the National Missions, as discussed in the box below.

Box 39 Disproportionate costs – findings from the national missions

Germany: While all parties recognise that the implementation of the Directives involves significant costs, there is a difference in opinion between the NGOs and industry about whether costs are disproportionate, as well as what should be considered disproportionate. The BDI points to a range of examples of significant costs, but the NGOs say that assessment of proportionality needs to consider these in context, with respect to the benefits achieved as well as the overall value of developments delivered. They refer to evidence that for most infrastructure projects nature expenditures account for less than 5% of total costs, as well as evidence of strong benefit:cost ratios for the conservation and restoration of a range of habitats. The federal highways administration argues that costs are often much higher than 5% of the value of road projects, sometimes exceeding 20% of project costs. Actions taken to protect some relatively common species (e.g. Sand Lizard) are seen by some to be disproportionately costly.

UK: While most UK stakeholders considered the overall balance of benefits and costs to be favourable, some examples of perceived disproportionate costs were raised. In particular, the implementation of species protection rules is seen as being excessively costly for some widespread species, especially the Great Crested Newt, and it is argued that resources devoted to surveys and species protection measures could be more usefully deployed in other ways (e.g. habitat scale approaches, or actions targeted at the species population level, rather than detailed surveys and measures focusing on individuals of a species).

Sweden: Little firm evidence is available of the balance of costs and benefits. However, both authorities and NGOs argue that costs are proportionate to benefits, although there is some scope to reduce administrative burdens associated with AA. Some representatives from the private sector argue that species protection measures impose disproportionate costs and burdens, while hunters claim that the costs of protecting predators are disproportionately high.

Source: National Missions.

The UK questionnaire submission describes some of the factors that have caused disproportionate costs in the UK, highlighting a lack of evidence to inform decision-making, creating a risk-averse approach by developers and land managers.

Box 40 Factors giving rise to disproportionate costs in the UK

The submission of DEFRA, UK argued that, although overall evidence demonstrates the net benefits of conservation action, some costs of implementation have been significant. It argued that costs tend to be driven up, and thus disproportionate, under the following conditions:

- When there is a lack of evidence on which to make decisions, or for developers to assess their proposals. A poor understanding of the conservation status of certain species can lead to more precautionary decision-making and higher costs. A lack of detail in site conservation objectives or difficulty in accurately predicting potential impacts may prevent a developer from being able to determine the likelihood that a proposal is viable in the early stages, again driving up costs for a project that may not be subsequently approved.

- When developers and land managers may be risk-averse, proposing mitigation beyond what might be considered reasonable and necessary given the scale of impacts, out of fear of prosecution or delays to projects. This increases costs substantially for developers. Evidence from the Forestry Regulation Task Force found that financial burdens and risks of non-compliance are sufficient to dissuade forest owners from managing sites. A key recommendation of this task force was that 'more resources are devoted to establishing a sound evidence base for determining to what degree approved woodland management activities affect European Protected Species.' For linear projects (e.g. highway developments), projects have felt compelled to fit and maintain many kilometres of temporary amphibian fencing, sometimes for many years, to prevent the killing of individual Great Crested Newts. Much of this relates to interpretation issues of the Habitats Directive, where better guidance might be of use.

Source: Evidence gathering questionnaire submitted by DEFRA, UK.

6.4.3.4 Views expressed in the online public consultation

Q8 of the online public consultation asked how the costs of implementing the Birds and Habitats Directives compare with the benefits from their implementation. Responses to this question were dominated by individuals responding to campaigning in support of the Directives. The vast majority of the respondents (93%) expressed the view that the benefits from the implementation of the Directives far exceed the costs. However, views varied markedly according to type of respondent. The great majority of individuals (94%) and 59% of NGOs thought the benefits far exceeded the costs. By contrast, 35% of associations other than NGOs and 75% of businesses considered the costs of implementation to far exceed the benefits. Government and public authorities were more or less equally divided with a slightly higher number (37%) believing the benefits exceed the costs rather than vice versa (28%).

Q22 asked whether costs are proportionate, given the benefits associated with the Directives. This question – which appeared in Part II of the questionnaire - received a markedly different response to Q8, reflecting the large proportion of land management and hunting interests answering this part of the questionnaire. Overall, more than half of the respondents (59%) considered the costs of implementing the Directives to be disproportionate to the associated benefits. This was especially noticeable for administrative costs, with 62% of respondents believing them to be disproportionate. However, 35-36% of respondents considered the costs to be proportionate to the benefits received in relation to managing Natura 2000 sites and protecting species. This percentage dropped to 26-28% when it came to administrative costs or lost opportunity costs.

Table 22 Results of Q22 of the online public consultation questionnaire

Q22: Are these costs proportionate, given the benefits associated with the Directives?

	Proportionate	Disproportionate
Natura 2000 site management costs	35%	57%
Costs of protecting species of birds	36%	57%
Costs of protecting species other than birds	35%	59%
Administrative costs	28%	62%
Lost opportunity costs	26%	59%

Row percentages may not add up to 100%, because the category "I don't know" is not presented. Thus, the remaining share to add up to 100% are respondents who answered "I don't know".

The answers to this question varied according to the type of respondent. The majority of businesses (84%) and 58% of individuals considered the costs disproportionate. On the other hand, the majority of NGOs (64%) and governments or public authorities (51%) believed the costs to be proportionate.

6.4.4 Key findings

Overall evidence indicates that the benefits of the Directives appear to exceed the costs at all scales and for most (but not all) sites. However, some stakeholders, particularly businesses, complain that the Directives can result in disproportionate costs, particularly as a result of inefficient implementation:

- Studies indicate that the benefits of the site and species protection ensured by the Directives greatly exceed the costs of implementation at the EU, national and local levels.
- Few studies have directly compared the costs and benefits of the specific actions required to implement the Directives. Those that have done so, suggest that the benefits of action exceed the costs at most, but not all, sites.
- Responses to the evidence gathering questionnaire and online public consultation, particularly from businesses, highlighted several examples where the costs of implementation were considered disproportionate to benefits.
- The most frequently cited examples of disproportionate costs related to species protection, particularly (but not only) in the protection of widespread species affected by development. Other examples given referred to the administrative burdens and delays associated with permitting more widely, and the opportunity costs of restrictions on forestry and other land management activities, particularly in instances where compensation is not paid by the authorities.
- It was frequently argued by representatives of all stakeholder groups that disproportionate costs can at least in part be attributable to poor national implementation rather than the Directives themselves.

6.5 Y.5 - Can good practices, particularly in terms of cost-effective implementation, be identified?

6.5.1 Interpretation and approach

Efficient implementation of the Nature Directives can be aided by examples of good practice, where the objectives of the Directives have been met at relatively low cost (i.e. where the results and impacts specified in the intervention logic model in Section 2 are achieved with relatively low levels of inputs). It is to be expected that problems experienced in the initial implementation of the Directives, which may have involved unduly costly or burdensome processes, will be subsequently identified and addressed so that processes become more efficient over time.

Cost-effective implementation may be seen in low unit costs relative to the results achieved, for example low costs per hectare of habitat protected or managed, per species protected, or per Appropriate Assessment (AA) undertaken. However, as noted in question Y.3 (see section 6.3), variations in costs are affected by a range of factors, such as differences in local needs and conditions, and economic variables such as land and labour prices, as well as good practice in implementation. Cost effectiveness cannot, therefore, be determined by comparisons based on costs alone. The strongest evidence is found in Member States whose costs have been reduced as a result of changes in practice, without reducing the benefits of the Directives. Much of the available evidence is qualitative, including case studies where streamlined processes have reduced costs and improved efficiencies in implementation and compliance.

To answer this question, evidence of the relative costs/ levels of effort required for alternative methods of implementation was examined. The main judgement criteria included:

- Examples of objectives being met at low cost.
- Examples of successful initiatives introduced to reduce costs.
- Examples of transferable practices for cost-effective implementation.

6.5.2 Main sources of evidence

The main sources of evidence are:

- EU studies of the implementation of the Nature Directives, the costs of the Natura 2000 network and Article 6(3) of the Habitats Directive (including Farmer et al, 2015; Gantioler et al, 2010; Sundseth and Roth, 2014).
- Member States' reviews of implementation, such as the review undertaken in England, as well as initiatives undertaken in other Member States.
- Examples of good practice identified in the evidence gathering questionnaires. Of the 71 responses to this question, 59 provided examples of activities representing cost-effective implementation.
- Views expressed in the National Missions and through the online public consultation.

Numerous examples were provided of cost-effective implementation. While these examples are mostly qualitative in nature, with few providing estimates of reductions in costs, a number of common themes emerge with respect to factors that can support cost-effective implementation.

Good examples of cost-effective implementation were found throughout the EU, with the largest number of well-documented examples submitted for Western European countries

(especially the UK, Germany, the Netherlands, France and Belgium). This may reflect the relatively high costs of implementation in these countries and the more pressing need to find cost-effective solutions, as well as their longer experience in implementing the Directives.

6.5.3 Analysis of the question according to available evidence

6.5.3.1 EU wide evidence of cost-effective implementation

Sundseth and Roth (2013) highlighted examples of good practice in the implementation of Article 6(3) of the Habitats Directive in the areas of guidance, expertise/capacity, consistency of screening procedures, early dialogue/partnership approaches, adoption of a proactive and strategic approach, a coordinated approach to major infrastructure, and a focus on win-wins and co-benefits. They concluded that the following steps can help to improve the efficiency of implementation:

- Improving access to data on Natura 2000 sites and protected species/habitats.
- Providing increased training on the AA procedure for competent authorities and project promoters, especially at regional/local levels, to improve understanding of the AA procedure.
- Providing targeted, user-friendly guidance, forms and checklists for the various stages of the AA.
- Ensuring a more robust and consistent framework for screening plans and projects.
- Encouraging early dialogue and cooperative working among the competent authorities, potential project or plan proponents, and between different sectors within government.
- Promoting a more inclusive strategy during the decision-making process, in order to take account of Natura 2000 at the earliest possible opportunity, reducing the potential for later conflict and encouraging a win-win approach.

Farmer et al (2015) identified the following best practice procedures to streamline AA and reduce permitting delays:

- Simplified planning processes and strategic spatial planning: In Denmark, for example, a strong strategic planning system supports appropriate and efficient coordination of activities across the countryside. This helps to remove potential conflicts between proposed developments and Natura 2000 sites at an early stage i.e. prior to project identification and permit application. A specific example was given for the planning of onshore and offshore wind farms across the country. Here, upfront strategic spatial planning and the identification of potential sites for wind farms, has avoided much of the potential conflict with Natura 2000 sites. Strategic planning approaches have also been developed in England for Enterprise Zones (EZs) and Nationally Significant Infrastructure Projects (NSIP). The latter operate within strict timetables and require developers to gather all data relevant to AA at an early stage, in order to avoid subsequent delays.
- Technical guidance and protocols: These help to ensure AAs are of sufficient quality to inform decision-making processes. Examples include specific guidance on sustainable mussel fisheries in Denmark, criteria for assessment of potential significant negative effects on Natura 2000 sites in Spain, and the Marine Maintenance Dredging Protocol in England, designed to streamline the process of

obtaining approval for maintenance dredging activities by ports that could potentially affect European sites.

- Expertise and skills: Employing appropriate specialists with the skills and training required to oversee AA processes was identified as important in both Denmark and England.
- Appeal procedures: These have been streamlined in Denmark and the Netherlands, helping to reduce delays in permitting processes.

6.5.3.2 Reviews of implementation in the Member States

In the UK, the HM Government (2012) review of implementation of the Birds and Habitats Directives identified a number of initiatives enhancing the cost effectiveness of implementation and reducing burdens on business.

- Facilitating nationally important infrastructure projects, including through streamlined processes and advance collection of data and early identification of any issues relevant to the Directives.
- Improving the quality, quantity and sharing of data, including a new group to develop and share marine evidence, consultation on standards of evidence for decision-making, plans for enhanced sharing of environmental evidence, and improved surveillance of protected species.
- Improving the 'customer experience' for developers, including new partnership approaches.
- Improving implementation processes and streamlining guidance.

The review also identified a number of examples of good practice in the UK (see Box 41). These highlight the advantages of early and constructive engagement and data-sharing among developers, regulatory authorities and nature conservation organisations.

Box 41 Examples of cost-effective implementation in the UK

Delivering jobs and protecting the Severn Estuary environment. In 2006, Bristol Port Company made an application for a major new container terminal on the Severn Estuary, which would have direct and indirect impacts on a protected winter feeding area for around 3,000 waterbirds in the SPA. The company engaged with the nature conservation obligations and worked closely with regulators and nature conservation NGOs to identify key impacts and agree mitigation, compensation and monitoring measures. These were set out in a detailed legal agreement, as a result of which, statutory advisers and the Royal Society for the Protection of Birds (RSPB) withdrew their objections. This allowed for approval of the development without a public inquiry. This expansion will create an estimated 1,800 new jobs and safeguard nearly 8,000 current jobs, as well as generating over GBP 114m (EUR 160m) a year for the local economy.

Local working – Scotland. A local collaborative approach in the siting of an open-cast coalmine in Ayrshire saved almost three years of discussion by 'front loading' the process, delivering both a replacement mine and the necessary levels of environmental protection. The Chair of the Regulatory Review Group facilitated project discussions with the developer, local community, local authority, Government environmental agencies and a green NGO before any application was made. The mine was eventually located a short distance from the original proposal and proceeded without further delays.

Resolving complex and sensitive infrastructure cases. Discussions of the Autumn Statement of the Chancellor of the Exchequer in November 2011 highlighted four cases, together worth GBP 1.3bn to the economy, with significant conflicts with the Directives. These were the Chilterns Railway, Able Marine Energy Park, Port of Falmouth and Greater Wash wind farms. A DEFRA-led Problem Solving Unit was set up to oversee these cases, report progress to Government departments and work with the statutory agencies, helping to resolve conflicts in each case.

Teesport Container Terminal: early agreement of evidence needs. A GBP 300m (EUR 420m) new container port in the Tees Estuary received approval in 2007. The project required redevelopment of brownfield land and 1km of dredging to deepen the main estuary channel. This would have potentially adverse impacts on a nearby SPA, causing changes in sedimentation patterns and cumulative impacts with another similar project. Early in the application process, detailed discussions between the developer's consultants and English Nature resulted in agreement on the scope of the impact assessment and application of geomorphological modelling to inform the likely impacts. This pro-active engagement provided certainty on what constituted appropriate evidence; ensuring efficient assessment.

Improving post-construction monitoring. Hutchison Ports proposed in 2003 to redevelop part of Felixstowe Port to increase container handling capacity, creating over 1,400 jobs by 2015. The development was expected to accelerate mudflat erosion and adversely affect the Stour and Orwell SPA. A package of mitigation and compensation measures was proposed, including a new sediment replacement technique. Monitoring primarily focused on establishing the efficiency of this technique and was complemented by the establishment of a Regulators Group to disseminate results. Monitoring found that the technique had been successful, enabling the scaling down of the mitigation measures without compromising the overall mitigation/compensation objectives.

Joint survey work to reduce costs. In response to a number of offshore wind farm applications, the East Irish Sea Developers Group was formed to assist with the coordination of these projects. The group comprises developers, Government agencies and the Crown Estate. It provides a forum to discuss issues of common interest, plan potential collaborative work and share data and knowledge. The Group facilitated the commissioning of joint aerial and boat-based marine mammal surveys covering all the prospective projects, enabling more comprehensive data collection while reducing overall survey costs.

Data sharing. The South Humber Gateway has, for many years, been identified as a development priority. Before decisions on individual developments can be made, information is needed on likely impacts on roosting/feeding areas on the Humber Estuary SPA/SAC. In 2007, North Lincolnshire Council decided to fund surveys of how waders and wildfowl used the land within the protected area allocated for development. The data collection project was managed by the Humber Industry Nature Conservation Association and the data collected stored by the Humber Environmental Data Centre. The same data is available to all developers, statutory agencies and decision makers, promoting consistency, avoiding duplication of data collection efforts, and saving time and costs.

Early collaboration. In 2005, Essex and Suffolk Water indicated its intention to upgrade Abberton Reservoir, Essex, with potential effects on a number of nearby SPAs. The developer and its consultants engaged fully with English Nature and the RSPB prior to submitting a planning application. This enabled the proposals to avoid any impacts on the SPAs, enabling the development of water supply infrastructure, as well as creating new habitats around the reservoir.

Source: (HM Government, 2012).

6.5.3.3 Examples given in the evidence gathering questionnaires

This question received 71 responses, of which 59 provided specific examples of cost-effective implementation. Most of these examples were qualitative in nature, with only five responses providing quantitative evidence of cost reductions. The examples covered a variety of themes, most commonly:

- The role of participation, consultation and stakeholder engagement in developing shared understanding and guiding implementation, especially at early stages of proposals or planning (13 respondents).
- Strategic planning approaches to manage conservation and other land uses (10 respondents).
- The provision of guidance to stakeholders affected by the Directives (9 respondents).
- Coordinated collection and sharing of information (9 respondents).

- Partnerships and joint initiatives between industry, NGOs and the nature authorities to meet common objectives (7 respondents).
- Use of volunteers for conservation action (5 respondents).
- Voluntary codes of conduct (4 respondents).
- Synergies in implementation with other directives (4 respondents).
- Annexed species licences/ agreements (3 respondents).
- Cost-effective use of Green infrastructure and nature-based solutions (e.g. flood management) (3 respondents).

6.5.3.4 Sectoral approaches to cost-effective implementation

Certain sectors, such as ports, renewable energy and the extractive industries, have many years of experience of working with the Directives and have developed working practices that meet the requirements of the Directives while facilitating the development of the industries concerned.

Box 42 The ports sector

Antwerp, Belgium: Large parts of the Port of Antwerp are designated as Natura 2000 sites under the Birds and Habitats Directives, leading, in the past, to conflict between industry and nature. This situation has changed over time, with ongoing extension of economic activities now going hand-in-hand with conservation. The Port Authority and the nature organisation Natuurpunt signed a charter in 2000 for the creation of a network of ecological infrastructure within the port area by means of the project 'Antwerp Port More Naturally'. The idea was that a network of core areas, corridors and stepping stones in the Antwerp port area should create more opportunities for protected port-specific plant and animal species, without adversely affecting the development and commercial exploitation of the port. The Port Authority and Natuurpunt want to safeguard up to 5% of the Antwerp sea port area as ecological infrastructure, thus guaranteeing the sustainable conservation of port-specific species. With the definitive delimitation of the port area in the Regional Spatial Implementation Plan (GRUP), an effort is being made to build a network of ecological infrastructure with a total area of 603 ha. Following evaluation, the partnership with Natuurpunt was renewed in 2009, and confirmed again in 2012. By 2009, just over 60% of the target had been achieved, with little progress in the meantime during the preparation and approval of the GRUP. Now that the extent of the port area has been delineated, work can continue in pursuit of the targets. In addition to the establishment of ecological infrastructure within the port area, core nature areas are being created around the outskirts, in order to achieve a Favourable Conservation Status for the SACs and make port development possible. By ensuring that the Port meets the requirements of the Flemish Species Policy and the Nature Directives, these measures create legal certainty for the port community and demonstrate that economic development can be aligned with the needs of nature. The Left and Right Bank Nature Management Committees monitor progress towards Favourable Conservation Status, reporting on the current position annually to the Commission and the Flemish Parliament.

Belfast, Northern Ireland: Belfast Harbour is Northern Ireland's principal maritime gateway and logistics hub, serving the Northern Ireland economy and, increasingly, that of the Republic of Ireland. Around 70% of Northern Ireland's and 20% of the entire island's seaborne trade is handled at the Harbour each year. The Port achieved a turnover of more than GBP 50m (EUR 70M) in 2013, and handled 23m tonnes of freight and 1.4m passengers in 2014. Within the heart of Belfast Harbour is Belfast's Window On Wildlife, an RSPB reserve within the Belfast Lough SPA. Home to birds and other wildlife from all over the world, more than 100 species have been recorded at the site. The reserve and visitor facility provide a good example of how a Natura 2000 site can co-exist with a fully functioning port, while continuing to support its SPA features and attract visitors to the area.

Source: Evidence gathering questionnaires submitted by Voka (Flanders' Chamber of Commerce and Industry) and Joint Links (UK).

Box 43 Renewables development in Slovenia, Ireland and Austria – the role of sensitivity mapping and strategic planning

Slovenia: Experience of wind farm developments helps to illustrate the adverse effects on economic development that can occur as a result of failures to implement the Directives. In the past, and in the absence of a strategic planning approach, the authorities issued environmental consents for wind farms at Volovja reber, a karst mountain ridge within Snežnik SPA/SAC. These were later nullified by the administrative court, with substantial delays and costs for the developer, who eventually abandoned the proposals in 2013 after 10 years of legal dispute. As the first wind farm project in Slovenia, other similar developments also hinged on its outcome. As a consequence, Slovenia has erected only two wind turbines to date. DOPPS – BirdLife Slovenia argue that the key obstacle is the lack of a national strategy or consensus on how and where to develop wind power. In response, they have conducted bird sensitivity mapping, helping developers to focus on locations with low bird sensitivity, and they continue to call for a strategic planning approach to wind power. The map suggests that only 15% of total Slovenian territory is highly sensitive for wind development, with an additional 15% deemed moderately sensitive. The remaining two-thirds of national territory should not harm bird conservation should wind farms be developed (Bordjan et al, 2012).

DOPPS – BirdLife Slovenia argues that while the Volovja reber case is often used an example of the administrative burden of the Directives, it would not have been the case had there been a more strategic national approach taken to wind farm development. The SPA Snežnik was designated to protect Griffon Vultures and Golden Eagles, species known to be particularly susceptible to collision with wind turbines.

Ireland: BirdWatch Ireland has developed a Bird Wind Sensitivity Mapping Tool to help prevent additional costs for wind energy developers. This tool allows developers and ecologists to determine the location of species potentially sensitive to wind developments throughout the Republic of Ireland. When adopted early, this tool gives clear direction to developers, thereby saving costs. Produced with funding from, and in consultation with, a broad suite of stakeholders including the Sustainable Energy Authority of Ireland, EirGrid, ESB networks, and the Department of Arts, Heritage and the Gaeltacht, among others, it helps to achieve renewable energy targets without adversely impacting on obligations under the Nature Directives. (A link to the mapping tool can be found here.) The Commission's Guidance on Wind Energy Development and Natura 2000 (European Commission, 2010b) notes that wildlife sensitivity maps will also help to avoid potential conflicts with the provisions of Article 5 of the Birds Directive and Articles 12 and 13 of the Habitats Directive, including outside Natura 2000 sites.

Burgenland, Austria: In contrast to most Austrian federal states, in which wind projects are analysed on an individual basis, Burgenland has carried out an early in-depth examination of nature conservation concerns as part of a larger-scale plan. This enables the harmonisation of sustainable energy and nature conservation (under the Birds Directive). The most and least suitable areas for windmills were defined in a regional spatial planning framework, enabling Burgenland to reach self-sufficiency in electricity production just 11 years after the first regional framework had been set up. Over the same period, populations of globally endangered bird species, such as the Imperial Eagle and the Great Bustard, which were protected through wind farm exclusion zones, has grown satisfactorily (Dvorak and Ranner, 2014). Burgenland's approach has brought more certainty for investors, time and cost savings for the authorities and project applicants, and better acceptance by the population.

Source: Evidence gathering questionnaires submitted by DOPPS – BirdLife Slovenia/Plan B, An Taisce – the National Trust for Ireland, Umweltdachverband (Austria).

Box 44 The extractive industries

The IMA states that Member States' approaches to interpreting and implementing the Habitats Directive are of primary importance in determining cost effectiveness. It considers the sector to have benefited greatly from Commission guidance on *Undertaking non-energy extractive activities in accordance with Natura 2000 requirements*. This guidance has helped to promote restoration activities that have extended the Natura 2000 network and to support nature conservation more widely. 35 case studies from IMA member companies across Europe are documented on the IMA website at *http://www.ima-europe.eu/publication-type/biodiversity-case-studies.*

Germany: In May 2009, the German Ceramic Raw Materials Association 'Bundesverband Keramische Rohstoffe e.V. (BKR)' and the Ministry of Environment, Agriculture and Forestry of

Rhineland-Palatinate (Ministerium für Umwelt, Forsten und Verbraucherschutz in Rheinland-Pfalz) signed an agreement to protect species. The agreement acknowledges that extraction sites of ceramic raw materials are of particular conservation interest because suitable habitats for endangered species may result from the extraction of clay:

- Amphibians like Yellow-bellied Toad and Natterjack Toad particularly benefit from the sparsely covered clay soils and pools created during active extraction.
- Other amphibians, including Tree Frog, prefer more covered waters created during inactive stages and after the end of extraction activities.
- Birds such as the Eagle Owl find nest sites in structured rock faces.

The agreement aims to protect the Yellow-bellied Toad and Great Crested Newt. It applies to permitted extraction sites and sites for which extraction is planned, located within and outside designated Natura 2000 areas. Extraction on these sites is designed and carried out with the maintenance and development of target species in mind, while within Natura 2000 areas, the agreement supports the AA process.

Source: Evidence gathering questionnaire submitted by the IMA.

Hunters also contribute to the cost-effective implementation of the Directives in many Member States.

Box 45 Hunters' contributions

France: Since 2014 hunters have been allowed to contribute to the regulation of the Wolf under Article 16(b) of the Habitats Directive. This has reduced the costs and improved the efficiency of the regulation, compared to control by public officials. In 2015, three-quarters of the shooting quota was met by hunters, at no charge to the state.

Greece: The environmental work of the Hellenic Hunters Confederation makes a cost-effective contribution to the implementation of the Nature Directives in Greece. The Confederation is funded solely by the hunting community and spends a total of EUR 15m annually. These funds are used for: 1) Action to stop illegal environmental activities and poaching, and to enforce environmental legislation through the Gameguard Body of the Hunting Organisations; 2) Habitat Improvement Programme; 3) Phenology of Bird Migration Programme; 4) Recording game species populations in Greece through the ARTEMIS Programme; 5) Employment of numerous scientific and administrative personnel; and 6) Specialised studies and reports. This contributes to the Birds and Habitats Directives' objectives for the sustainable use of natural resources and the protection of the environment.

Belgium: Hunters contribute to the management of forests and other habitats, such as the 'Criteria Duurzaam Bosbeheer' framework in Flanders. Hunters are also involved in action to restore wetland habitats, with positive impacts on waterfowl species. There are good examples of projects creating wet grassland complexes for overwintering birds and restoring reedbeds and other habitats. A LIFE project (3Waters) has been executed with the help of hunters and landowners in Limburg, with another proposed for the Oostkustpolders.

Source: Evidence gathering questionnaire submitted by FACE.

6.5.3.5 Use of information

Information plays a crucial role in the implementation of the Directives, the gathering, processing and application of which represents a major cost for authorities, developers and other stakeholders. Efficiency in the acquisition and use of information, therefore, has an important role to play in cost-effective implementation.

Box 46 Mapping tools in Malta

An important tool utilised by Malta is the MapServer (hosted on the website of the Malta Environment and Planning Authority (MEPA), at: http://www.mepa.org.mt/mepa-mapserver), which includes various map layers, covering both development and environment aspects. This provides information to government officials, professionals (such as architects) and the public, including on the location of Natura 2000 sites and other protected areas.
Source: Evidence gathering questionnaire submitted by MEPA.

Box 47 SCANS – survey collaboration between Member States

The SCANs-II project is an example of effective collaboration by Member States to implement the requirements of the Habitats Directive in the most cost-effective way possible. It involved large-scale surveys to estimate the abundance of small cetaceans in the European Atlantic and North Sea, in line with the requirements of Article 11. The project was supported by LIFE funding, with 11 partners in 10 countries, and co-financed by institutions in seven countries. EU funding was an important catalyst for collaborative action in this case.

Source: Evidence gathering questionnaires submitted by BirdLife Europe and Nature Trust Malta.

Box 48 Streamlined data collection in the UK

The UK aims to streamline data collection and to use it to support implementation of a range of EU and international environmental legislation. As an example of best practice, the collect-once-use-many-times approach is being used through the development of the UK Marine Monitoring R&D Programme. The current strategy addresses significant policy and statutory obligations, including the UK and Devolved Governments High Level Marine Objectives, OSPAR Convention (an international agreement to protect the marine environment of the North-East Atlantic) and the Nature Directives, in the most cost-effective and efficient manner. Data collection methods and standards will be developed to meet all requirements, with the same data then used to make comparable overall assessments, even if they have different overarching status'. This collaborative approach by Natural England and the Environment Agency to the monitoring of inshore waters to meet the objectives of both the Habitats Directive and the WFD has provided significant efficiencies.

Source: Evidence gathering questionnaire submitted by DEFRA, UK.

6.5.3.6 Use of technology and equipment

The following examples show how the use of technology and equipment is contributing to cost-effective implementation in different Member States.

Box 49 Examples of cost-effective use of technology and devices

Malta: Information technology has been used to reduce the costs of regulatory processes in the implementation of the Birds Directive. For example, the Wild Birds Regulation Unit has implemented a state-of-the-art electronic game reporting system used for real-time monitoring of bag limit uptake by hunters/live-capturers, and for verification of regulatory compliance. This system has proven to be a very effective and relatively inexpensive way of obtaining reliable real-time information. The Malta Police Force has deployed unmanned aerial surveillance vehicles (drones) during surveillance operations conducted during bird migration seasons. The Maltese authorities argue that this deployment has been effective in deterring abuses and in detection of potential illegalities. Deployment of drones for surveillance of poorly accessible areas has also led to cost savings in comparison with the alternative deployment of personnel on the ground. A GIS has also been developed, containing regulatory information pertaining to licensed live-capturers during autumn live-capturing derogations. The system - installed on portable tablet computers - allows instant on-site verification of regulatory compliance during inspections.

UK: New technologies are making enforcement of management measures of features inside European Marine Sites much more cost-effective. Mobile phone 'black boxes' are placed on top of the wheelhouses of vessels, and these send geo-locational information to a central data hub, then onto fisheries regulators. This technology can also store information until a signal is received. This is very cost-effective for the fishing industry. The equipment costs about GBP 1,000 (EUR 1,400) with about GBP 200-300 (EUR 280-420) annual costs in download time per vessel. This is much more cost-effective and reliable than traditional observation, with its associated issues of interpretation.

Slovenia: Slovenia compensates owners for all damages caused by Wolves to livestock. In 2010, the LIFE SloWolf project trialled the use of electric fences on farms which regularly suffered damage to livestock from Wolves. 10 sets of electric fences were distributed to eight farmers, at a total cost of EUR 1,600. This led to a reduction of around EUR 100,000 per year in the compensation paid for damage. As well as reducing costs to the taxpayer, the reduced damage has helped to enhance tolerance of the species.
Source: Evidence gathering questionnaires submitted by MEPA, Joint Links (UK) and DOPPS – BirdLife Slovenia / Plan B.

6.5.3.7 The role of institutions in cost-effective implementation

Some Member States have developed new institutional arrangements to aid the cost-effective implementation of the Directives. Such arrangements can help to streamline management and decision-making processes by promoting engagement and participation among relevant stakeholders, and by facilitating efficient use of data and evidence. Some examples from Germany are given in the box below.

Box 50 Institutional development in Germany

The Nature Directives have led to the development of institutions and structures in several Länder, in which conservation authorities collaborate with agriculture, forestry, hunting, municipalities and NGOs to implement the Nature Directives and Natura 2000. Benefits of this approach include early avoidance of conflict, additional funding, and improved public relations. While such institutions incur set-up costs and do not exist in all Länder, they have proven to be an important structure for cost effectiveness and promoting acceptance of the implementation of the Nature Directives.

Biostations in Nordrhein-Westfalen (NRW): 40 biological stations were established in NRW in the 1990s as decentralised conservation institutions to manage approximately two-thirds of all SACs and almost all of the SPAs in the region, on behalf of the NRW government and its counties. A unique network, the Biostations are an interface between conservation authorities, nature users, and volunteer conservationists. They register and map flora and fauna in Natura 2000 sites, organise nature conservation friendly land use, maintain intensive contact with users, advise on contractual conservation agreements, prepare and implement management plans, and inform the public. Often, they also take on the practical implementation of habitat management. Every year they assess the condition of each site. In 2012, eight new LIFE projects were approved in Germany, five in NRW, and four of whom were submitted and implemented directly by Biostations. The LIFE projects were mostly focused on Natura 2000 sites, and in some cases on Habitats Directive species (e.g. Spadefoot) outside of Natura 2000. Altogether, 26 LIFE projects have been implemented in NRW, 15 under management of the Biostations. NRW and its counties provide finance of EUR 10m for the Biostations annually, with an additional EUR 4m acquired from other sources. The stations have a permanent staff of about 200, as well as 70-100 interns and a further 800 volunteers. The volunteers work approximately 40,000 hours annually, which, if valued at EUR 15 per hour, is worth around EUR 0.6m each year.

Landcare Associations (Landschaftspflegeverbände): The German Association for Landcare (DVL) is a 20-year old umbrella organisation of 155 Landcare Associations (LCA). These regional non-governmental associations link nature conservation groups with local farmers and local communities. The often opposing interest groups work together voluntarily in LCAs to protect cultural customs and traditional farming systems. By pooling interests and local forces, LCAs implement integrated and sustainable land management practices in many rural areas, supporting nature conservation and sustainable development. Local Landcare coordinators develop projects for specific landscape types, apply for funding, supervise implementation by local farmers, and monitor project outcomes. Successful projects depend on close cooperation with farmers, local communities, conservation groups and government authorities. LCAs work with 20,000 farmers and half of Germany´s communities, and have a turnover of EUR 20m per year. Project coordinators also combine traditional knowledge and new scientific results to foster farming practices which provide sustainable incomes to farmers, conserve landscape diversity and deliver ecosystem services. DVL has also provided manuals and guidelines on Natura 2000 implementation.

Source: Evidence gathering questionnaire submitted by NABU.

In France, institutional changes have sought to enhance the efficiency of site manage-ment.

Box 51 France – Cost-effective approaches to site management

A number of examples of good practice have reduced the cost of site management:

- The designation of a joint coordinator for several Natura 2000 sites with similar conservation challenges (forest environments, agricultural environments, pastoral environments, etc.) achieves economies of scale and reduces costs.
- Transfer of management of marine sites to a single public body, the AAMP, instead of diverse local operators. The majority of the marine sites included in the Natura 2000 network are now managed by the AAMP, which handles the preparation of the DOCOBs for these sites, as well as local coordination. This delivers economies of scale by pooling marine knowledge, DOCOB preparation work (which may now include a common base where the conservation challenges of the sites concerned are similar), and site coordination activities (which may be assigned to specialist joint coordinators for several sites at the scale of marine sub-regions). The previous operators continue to work together at regional level, within the framework of more general conventions covering all marine environmental policy requirements.

Source: Evidence gathering questionnaire of Ministry for Ecology, Sustainable Development and Energy (MEDDE).

In densely populated countries such as the Netherlands, competing pressures on land and fragmentation of land use can be a major constraint to cost-effective implementation. Strategic spatial planning and land consolidation plays an important role in enhancing cost effectiveness.

Box 52 Netherlands - Spatial development and land consolidation

The integrated programmes for land consolidation ('ruilverkaveling') have been important for the implementation of the National Ecological Network. In these programmes, typically, a region is re-developed and re-parcelled. The location of nature, agriculture, industrial, housing and other areas, as well as watercourses, roads and landscape features are planned in an integrated way, taking into account the interests of all stakeholders. Owners can (voluntarily) offer parcels of land to the programme and apply for other parcels, enabling farmers, for example, to obtain land closer to the farm, reducing fragmentation and facilitating zoning of land for agriculture, water management and nature conservation. This allows the possibility to enhance the coherence of natural areas, re-naturalise water courses and manage groundwater regimes. Existing nature designations may, however, limit possibilities for exchange. Where necessary, compulsory purchase of land can be required to complete the programme.

Oldematen is a site with a complex of grasslands with broad canals and - in some places - transition bogs, which are very important for meadow birds. Land reforms have made the area more robust and improved water management for both nature and agriculture, making it easier for farmers' collectives to harmonise nature conservation and farming practices. Participatory approaches have tackled initial stakeholder opposition and found opportunities to integrate nature management and agricultural use.

Source: Evidence gathering questionnaire of Ministry of Economic Affairs, Netherlands.

6.5.3.8 Appropriate Assessments and development permitting

EU studies highlight that the costs of AA can vary widely between Member States and types of project. The following examples show that good practice in stakeholder engagement, use of knowledge, development of expertise, collaboration between authorities, project screening and the harmonisation of requirements between legislation can help to reduce costs and administrative burdens, illustrating many of the themes identified in reports by Ecosystems Ltd (2014) and Farmer et al. (2015).

Box 53 Good practice in AA and development permitting

The benefits of early engagement. BirdLife Europe points to case studies in the UK which demonstrate that where developers engage with the processes set out in the Directives, a solution can usually be found that meets both environmental and economic needs. Such solutions secure the economic benefits of development without compromising the integrity and benefits of the protected site, while also avoiding unnecessary delay and cost arising from legal challenges (RSPB, 2012).

The importance of skills and capacity. Evidence suggests that low quality AAs can cause delays and administrative burdens. The Czech Republic has found that licensing qualified experts to undertake AAs proved reliable and cost-effective, ensuring complete analysis of the impact of a project on Natura 2000 sites. This reduces costs associated with repeating previously-inadequate AAs.

The benefits of collaborative approaches in streamlining permitting. The Dogger Bank is a large sand bank complex in the North Sea located in UK, Dutch, German, and Danish waters. It is an important marine habitat, supporting large numbers of species, and has been designated as SAC and SPA by the UK, Dutch and German governments. The site is also attractive for offshore wind farm development. The Member State authorities have come together to introduce a permitting process which requires each proposed development to undergo a single AA and single EIA, both of which will take account of trans-boundary impacts. This avoids the need for developments to seek consent from multiple authorities in different Member States under different processes, thus reducing administrative burdens. Such a joined-up approach would not be possible under disparate national legislation. From an environmental perspective this EU approach is beneficial as it is possible to assess the full impacts of the development over the North Sea area, rather than only discrete pockets. Developers benefit from undertaking fewer assessments in order to complying with laws of different governments (Baldock et al, 2013b).

Avoiding duplication of effort with other legislation. In Germany, the requirements of Articles 6(3) and 6(4) of the Habitats Directive are fulfilled through specialised procedures defined by relevant legislation. A preliminary screening is only carried out under the Habitats Directive when a project does not fall under any other legislation that requires an official decision or notification by a public authority. This takes place during a so-called subsidiary notification procedure by the competent nature conservation authority (§ 34 para 6 Federal Nature Conservation Act, BNatSchG). An unnecessary duplication of effort is avoided by integrating this preliminary screening into the procedures of responsible authorities.

Source: Evidence gathering questionnaires submitted by BirdLife Europe, the Ministry of the Environment of the Czech Republic, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety for the German Federal Administration.

Box 54 Austria: Streamlining of consultation and screening

The Austrian environmental NGO grouping Umweltdachverband argues that the early involvement of nature conservation experts in the planning process leads to better project solutions, helps to avoid costly planning failures, identifies alternative solutions, and facilitates more constructive negotiations between ecologists and project designers.

Some federal states in Austria have advanced innovative, simple and citizen-friendly approaches to project screening for nature impact assessments. Pre-tests clarifying whether or not the nature impact assessment is needed for a plan or a project can be carried out in a few weeks. In some federalstates, the result is communicated to investors in the form of an official note or a legally valid letter of the provincial government.

In 2002, the federal state of Lower Austria developed a screening datasheet, in which investors had to indicate all of the implications their project might have for Natura 2000 areas. Instead of extensive irrelevant technical project documentation, investors were asked to summarise the potential effects of the project. This procedure resulted in short evaluation phases, taking an average of four weeks, including 9-10 days for the expert evaluation by the team of trained evaluators (comprising herpetologists, ornithologists and vegetation ecologists) that existed in Lower Austria at that time. 52% of all proposals could be granted without further impact assessment, since adverse effects on the integrity of the site could be excluded without doubt. In 2006, the service was suspended for political reasons.

In Vorarlberg, a highway (S18) is planned which would run through a Natura 2000 area (Lauteracher Ried, Unteres Rheintal). 15 years ago, planning delays occurred as a result of European Court of Justice (CJEU) proceedings related to the lack of designation of a bird conservation area. In order to avoid such delays, the environmental compatibility of the route was evaluated before the beginning of the official project planning.

The first result was negative, since the projected road would have entailed significant damage to the Natura 2000 area, saving costly delays. The authorities then asked experts to analyse the

ecological or technical issues identified in the environmental compatibility study and to propose alternative solutions. Changes to the position of motorway junctions and radii and the building of new tunnels were discussed as possible solutions, taking into account the cost and feasibility of these measures.

Source: Umweltdachverband evidence gathering questionnaire response.

6.5.3.9 Infrastructure development

Major infrastructure projects often come into conflict with Natura 2000 and can have adverse impacts on protected species. Given the complexity of these projects, poor planning can lead to substantial information costs, delays and administrative burdens. Several Member States have introduced strategic approaches to planning and information gathering, in order to streamline the passage of such proposals.

Box 55 Projects of Common Interest (PCIs) - enhancing the cost effectiveness of applying the Directives to energy infrastructure projects

Members of the Renewables Grid Inititative (RGI) believe that PCIs under the Trans-European Energy Networks Regulation will become a model for good practice, but it remains too early to confirm this belief. However, many of the elements have the potential to increase the cost effectiveness of implementation. The UK introduced similar requirements in national planning for major infrastructure under its 2009 Planning Act, with largely positive results. Among the requirements under the PCI scheme are earlier consultation, 'one-stop shops' for planning and permitting, a requirement for national handbooks on participation procedures, and streamlining of environmental assessment procedures. The Commission Guidance document 'Streamlining environmental assessments procedures for energy infrastructure Projects of Common Interest' (http://ec.europa.eu/environment/eia/pdf/PCI_guidance.pdf) provides a range of specific recommendations and Member State examples, including early planning and road mapping in Germany and Hungary, coordinated data collection tools in Belgium, and SEA of a national transmission grid investment plan in Portugal.

Good practice in complying with the Directives in grid planning includes mapping the boundaries of protected areas with GIS systems that optimise route planning. The Belgian Grid Operator Elia confirms that high value maps and information such as aerial photographs, provide valuable support for cost-effective implementation.

Terna, the Italian Transmission System Operator (TSO), voluntarily applies 'ERPA-siting criteria' (Exclusion, Repulsion, Problematic, Attraction) in order to identify the corridor with the highest degree of environmental compatibility and sustainability. The criteria are determined by a National SEA Group. This group consists of environment, cultural heritage and economic development Ministers, and representatives of the Italian regions and autonomous provinces which have signed a memorandum of understanding with Terna. Their work covers technical, economic, social, environmental and territorial aspects. The TSOs RTE and Elia are considering mapping tools adapted to the linear context of corridors to efficiently manage forest corridors with respect to vegetation risk management and biodiversity enhancement potential.

Source: Evidence gathering questionnaire submitted by the RGI.

Box 56 Nuclear infrastructure projects (NISP) in the UK – developing efficient approaches to evidence and assessment

The contrasting experience of proposals to develop new nuclear power stations at Hinkley Point (Somerset) and Sizewell (Suffolk) provide lessons for the development of new infrastructure projects.

In the case of Hinkley C, no pre-planned work programme was put in place for Natural England and the developer. As a result, engagement was predominantly reactive, with Natural England staff dealing with issues when they arose, creating resource and time inefficiencies. Key issues related to the lack of information on the possible impacts from new technologies and processes, lack of organisation with regard to consultation, lack of involvement of Natural England in scoping evidence gathering, and inefficiencies in the preparation of assessment material for other

legislation. Surveys were scoped and undertaken without Natural England's involvement, proving costly for the developer when they were deemed inadequate. Natural England concluded that better mechanisms to manage the assessment of impacts could have reached similar outcomes more quickly and cheaply. The Habitat Regulations Assessment (HRA) and EIA were undertaken as separate, independent processes, and completed by different teams, leading to duplication of work.

Both the developer and Natural England took considerable learnings from the Hinkley C experience, and worked together in a much more collaborative way for the Sizewell C development. Two key mechanisms were put in place for the Sizewell C proposal: an evidence plan and protocol for agreed ways of working, which both parties agree has significantly facilitated the process. A proportionate and well-scoped evidence plan is agreed to ensure that adequate information required for HRA is provided in a timely manner. Evidence plans are formally agreed between Natural England and the developer, so that the evidence requirements relating to European site impacts are fully understood. The Sizewell C evidence plan is considered to demonstrate best practice and is being used to inform other NSIP proposals, including a nuclear power station proposal in Cumbria. A protocol setting out agreed ways of working has been formally developed for the Sizewell C case, within which the developer and Natural England have documented how Natural England will be consulted, the timeframes for meetings and responses, and expected behaviour. The protocol particularly focuses on reasonable timeframes for the consideration of new information, and for response times. A similar protocol will likely be adopted for other forthcoming NSIP cases.
Whilet these mechanisms create upfront costs in their development, they are believed to bring clear savings in the longer term.

Natural England concludes that these case studies demonstrate that the Directives are very effective at driving solutions that provide certainty, through a strict regime of evidence-based decisions and benchmarked mitigations. The Directives remain relevant because they can drive the achievement of win-win solutions. The EU level of the legislation adds significant value in achieving consistency and an appropriate standard. While implementation has the potential to be costly and time consuming, the case studies demonstrate that highly complex development cases can be dealt with efficiently, given the right tools and mechanisms. Coherence with other EU environmental legislation is also greatly aided by the use of such tools to set out agreed work programmes and themes upfront, thus reducing unnecessary duplication.

Source: Supplementary evidence submitted by Natural England.

Box 57 Strategic planning of infrastructure in Poland

According to World Wide Fund for Nature (WWF) Poland, the introduction of strategic planning into Polish law in response to the requirements of the Nature Directives promotes sustainable development, with several cases where strategic planning of large investments has been beneficial.

One example is the project to develop an energy interconnection between Lithuania and Poland, passing through North East Poland which has a high concentration of SACs and SPAs. A strategic planning approach enabled a route to be identified relatively quickly and smoothly, and with minimal impact on biodiversity.

Another case related to the development of Lublin International Airport. Initial plans focused on a grassy airfield which holds a large colony of Spotted Souslik (Speckled Ground-squirrel). To avoid a conflict with the Habitats Directive, the local authority decided to move the development to another site, resulting in a more ambitious investment and an increase to the airport area.

Other cases such as the Via Baltica have been less well planned, resulting in substantial delays and administrative costs (see question Y.4). Regional and local authorities, politicians, companies and investors can learn from these experiences for future decision-making processes..

Source: Evidence gathering questionnaire submitted by WWF Poland.

6.5.3.10 Pollution Control

Tackling the effects of air and water pollution on Natura 2000 sites is a major challenge to achieving FCS for many Member States. Pollution control measures can be costly and constrain development in sensitive areas. In the Netherlands, reducing the effects of nitrogen deposition on Natura 2000 has proved to be an expensive and considerable challenge, prompting the need for new and more cost-effective approaches.

Box 58 The Netherlands – cost-effective investment in tackling nitrogen deposition

The Netherlands has introduced a Programmatic Approach to Nitrogen (in Dutch: Programmatische Aanpak Stikstof: PAS). The PAS represents one of the largest investments associated with Natura 2000 in the Netherlands, tackling nitrogen deposition in nitrogen sensitive Natura 2000 areas. The PAS, which was due to be launched in 2015, seeks to achieve Natura 2000 objectives in a cost-effective way, while also allowing for economic development. It uses an inter-governance approach across all sectors and areas, and includes analysis of scenarios for emission reduction, based on generic measures. It features an additional national package of measures for the agriculture sector, as well as measures at the provincial, regional and local levels, such as habitat restoration measures.

Leneman et al (2012) estimated the benefits and costs of the PAS by comparing a situation with the PAS to one without it, each regulated by the same Natura 2000 policy. The most significant benefit was the increased room for economic development in the agricultural sector, and cattle farming, in particular. The highest costs relate to restoration management, hydrology and other local measures in nature areas (borne by the government). Source-based national and provincial measures to reduce the nitrogen emission from the agricultural sector, also account for a considerable share of the total costs (borne by the agricultural sector). In total, benefits were estimated at EUR 202-300m per year, compared to costs of EUR 96m per year, giving a benefit:cost ratio of between 2:1 and 3:1. While the benefits exceed the costs at national level, this is not true for all sites – for example, at the Natura 2000 site of Engbertsdijksvenen the costs were found to exceed the benefits (see question Y.4).

Source: Evidence gathering questionnaires of Ministry of Economic Affairs, Netherlands and *Vogelbescherming Nederland.*

6.5.3.11 Multiple benefit initiatives

Cost effectiveness can be enhanced where actions to implement the Directives provide multiple environmental, social and economic benefits, delivering wider objectives and contributing to the aims of other policies.

Box 59 Multiple benefit initiatives in the UK and Netherlands

The implementation of the Directives is made more efficient when initiatives achieve multiple environmental benefits. The agri-environment schemes in place in the UK reap multiple benefits, not only for biodiversity but also for other aspects of the environment, such as landscape and historic assets.

DEFRA commissioned Natural England and the Environment Agency to identify better ways to integrate the objectives of the Biodiversity 2020, WFD, , and Flood and Coastal Risk Management (FCRM) programmes. This led to the creation of the DEFRA Synergies Project, a core objective of which is a set of recommendations for improved, integrated achievement of Government environmental objectives that can bring cost-effective improvements to a range of ecosystem services. The UK Government's Nature Improvement Areas programme is a further example of a multi-benefit initiative which particularly contributes to the requirements of Article 10 of the Habitats Directive.

The Sustainable Catchment Management Programme was devised to ensure the sustainable environmental management of 20,000 ha of water catchment land under United Utilities' ownership in the Peak District and the Forest of Bowland. One of the main drivers was restoration of land with

SSSI and SPA status supporting priority habitats, such as blanket bog and heather moorland, and species such as Hen Harrier, Curlew and Stonechat. In recent decades, industrial pollution, drainage of the moorland peat, wildfires and agricultural practices have all had a negative environmental impact, affecting the wildlife value of the site. This has contributed to increased discolouration and pollution of water drawn from the catchment, which has to be treated before it is suitable for drinking. A partnership between United Utilities, the RSPB and local farmers has developed an integrated land management approach which complies with the Habitats Regulations, enhances biodiversity and improves the quality of the water abstracted for drinking, as well as providing enhanced income for tenant farmers. Over time, healthy peat vegetation will absorb and store large amounts of carbon and help to mitigate the impact of climate change. A representative of United Utilities states that the scheme is enjoying early signs of success.

There are similar examples in the Netherlands, where water companies own 36 Natura 2000 sites. They recognise the importance of proper conservation of these areas for the supply of clean drinking water and take the lead in stimulation of conservation of nature and biodiversity.

Source: Evidence gathering questionnaires submitted by DEFRA, EEB and Vogelbescherming Nederland.

Box 60 Germany – Cost savings through joint action with the WFD and MSFD

In Germany, the data gathered for monitoring obligations under the Habitats Directive is also used for other EU Directives, such as the WFD (for six water-bound habitat types, fish, cyclostome, and the Common Otter) and the MSFD (marine habitat types, sea birds, marine mammals). The data collection of the Federal Forest Inventory was extended to include frequent forest habitat types. Data used for the national report on bird protection are also used as indicators for the status of implementation of the national biodiversity strategy. Using data jointly, or extending existing data collection, reduces effort and costs, as well as improving cooperation among the different sectors involved.

Joint measures are undertaken to implement the WFD and the Nature Directives, for example in conserving habitats and improving passes for migratory fish. This joint process has already shown initial success in improving the conservation status of some fish species. Other examples of synergies that have reduced costs include joint management planning under the Habitats Directive and the WFD, and an R&D project to develop and test a harmonised procedure and guidelines for the trans-sectoral and cross-border implementation of the WFD, Habitats Directive and Birds Directive.

Source: Evidence gathering questionnaire submitted by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (Germany).

6.5.3.12 Species conservation

Evidence presented in response to other efficiency questions (Y.4 and Y.7) demonstrates that species protection rules can lead to disproportionate costs and administrative burdens, particularly where they are applied rigidly to cases involving routine operations affecting widespread species. Several Member States, including the Netherlands, Germany and the UK, have made efforts to reduce burdens by streamlining procedures. Codes of conduct and licensing arrangements can play an important role in this respect.

Box 61 Species licensing in the UK

A comprehensive review of the way in which European Protected Species (EPS) derogation licences are managed under the Habitats Directive has been undertaken by Natural England. Case-by-case consideration of licence applications is very resource-intensive and time-consuming, with a number of initiatives being introduced to streamline the process. These include the use of general and class licences, and the publication of new codes of practice which have reduced costs and simplified processes. Financial cost reductions are estimated to be in the region of GBP 400,000 per year from the main improvement measures. Licence types have been modified to take better account of the type of activity, the level of risk and requirements for evidence and oversight. The improvements are also reported to significantly reduce delays to development. The 12-month trial period for the Low Impact Bat Class Licence (permits to qualified consultants undertaking low-risk works affecting bat roosts) was reported to save 444 weeks in possible delays to development proceedings. Training is due to be introduced shortly, following which individuals may seek to

obtain personal EPS Licences.

The introduction of annexed licences to the individual EPS mitigation licence process (currently applicable only to Great Crested Newts, bats and Dormice) has also improved efficiencies for developers. The annexed licence process allows minor issues in the method statement to be dealt with outside of the formal Further Information Request (FIR) process, providing more flexibility to the system. Poor quality applications and those requiring significant changes continue to receive FIRs. The annexed licence process reduces development delays and costs, as the licence is issued more quickly than in cases where an FIR is issued. During the first 11 months of introducing the Great Crested Newt annexed licence process, 160 FIRS were avoided. Despite some ongoing challenges in the system, this has made a significant positive impact. Cost savings in 2014/15 were estimated at GBP 158,250 (EUR 221,000) for Great Crested Newts, GBP 90,000 (EUR 126,000) for bats and GBP 2,250 (EUR 3,150) for Dormice.

Source: Evidence gathering questionnaires submitted by DEFRA and Joint Links.

Box 62 Codes of conduct and common exemptions in the Netherlands and the UK

The Birds and Habitats Directives have prompted the establishment of codes of conduct and charters in several sectors in the Netherlands. These are cost-effective strategies because they provide derogations on some aspects of species protection. Codes of conduct and charters work best if implemented nationally, rather than locally, to maintain a level playing field. In addition, if the exemption covers all aspects of the activity, they avoid the requirement for additional permits. Examples include:

- Codes of conduct: These have been found to be cost-effective instruments in fulfilling obligations to care for species laid down in the Dutch Act for the Protection of Flora and Fauna. Normally, companies and organisations need to apply for an exemption for sustainable exploitation and management of species protected under the Nature Directives. However, companies and organisations that operate according to codes of conduct do not need to apply for such exemptions. Codes of conduct are made for various sectors (13) and municipalities (21). For example, there is a code of conduct for the water boards on maintaining watercourses, specifying the time of year, phasing and execution of management measures. The Ministry of Economic Affairs has estimated that this provision reduces administrative burdens as it eliminates the need to process some 1,200 exemption applications per year.
- Agreements not implemented in law: 'S(up)port for Nature' is a framework agreement between site managers and the organisers of sports events to prevent damage to soil and nature, inconvenience to residents and visitors and to promoting the safety of sports events. Another recent development in the Netherlands is the establishment of a covenant for recreation on Lake Ijssel by numerous water recreation stakeholders, working in cooperation with nature management organisations. Administrative organisations such as water boards, road managers and NGOs also have codes of conduct for nature management.
- Species management plans (SMP): These apply to common species that are strictly protected under the Directives. SMPs include measures to ensure a Favourable Conservation Status for the species concerned, and at the same time, to establish rules and conditions for the development of socio-economic activities in the area. SMPs can function as a sound basis for issuing generic exemptions for the development of socio-economic activities. The implementation of an SMP creates a surplus of habitat for the protected species, thereby mitigating or compensating for the negative effects of implementing a spatial plan and for socio-economic activities. The SMP is a promising tool, especially for protected species that are rather common and widespread in cities, such as some bats. To-date, however, SMPs have not been widely implemented.

In the UK, the Ports and Maintenance Dredging Protocol is an example of Natural England working closely with industry to find a solution that allows ongoing activities to proceed without the need for repeated assessment.

Source: Evidence gathering questionnaires of Ministry of Economic Affairs (Netherlands) and DEFRA (UK).

Box 63 Bat Conservation Trust, UK

BCT Bat Helpline/volunteers giving free advice

Natural England, through the BCT's National Bat Helpline and Natural England's network of Volunteer Bat Roost Visitors, can provide free advice to homeowners and community initiatives to help them to meet their responsibilities relating to the presence of bat roosts. They also advise those who want to carry out minor works on their houses. The BCT answers an average of 4,000 queries from the general public annually on behalf of Natural England, relating to bats and planning, development and licensing issues. The BCT and its volunteers undertake approximately 1,700 visits, safeguarding an average of 1,220 bat roosts annually. This free advice does not currently extend to cover works that would require a licence, or that are subject to planning permission. Any work relating to planning applications is referred to a consultant and the homeowner must pay for the advice. This distinction between volunteer and paid services is appropriate if the proposed works are complex, will require substantial mitigation, or are part of a wider development. However, in instances relating to low-level disturbance, there is scope to reduce licence applications and administrative costs through simplified procedures and earned recognition.

Utilising expertise to inform and improve systems:
The BCT has developed an online knowledge hub, the ROOST website, to share best practice in mitigation between professionals working in the field. This website provides numerous examples of situations where access to ecological expertise has prevented delay, and, in some cases, avoided licensing in an irresponsible manner.

Source: Evidence gathering questionnaire submitted by Joint Links.

Box 64 Germany - Species protection can reveal cheaper solutions

Hochwasserrückhaltebecken Bohrertal – A controversial plan to install a water retention basin in the Quarter of Günterstal in the Bohrer valley south of Freiburg, Baden-Württemberg, triggered substantial local opposition, since it involved the construction of a 15-metre dam in a residential area. The plan also required the re-routing of a road into the adjacent forest, with adverse impacts on the habitat of the Dormouse, a species listed in Annex IV of the Habitats Directive. This led to an alternative solution involving development of two smaller basins upstream, resulting in reduced costs and a lower impact on people and nature.

Hessen, Germany – A planned development of the A49 motorway would have destroyed the Land's most important habitat for the Great Crested Newt near Stadtallendorf. This led to an alternative route being found, sparing the Newts' habitat, while allowing a second exit from the motorway, and saving EUR 50m in costs (an average of EUR 10,000 per Great Crested Newt).

Source: Evidence gathering questionnaire submitted by FoE Europe.

6.5.3.13 The role of volunteers

Volunteers play an important role in the implementation of the Directives, and enhance the cost effectiveness of delivery in many Member States.

Box 65 Volunteering in Germany, Estonia, Ireland and the UK

Germany: Voluntary engagement contributes hugely to the cost-effective implementation of the Nature Directives. Many volunteers from scientific associations or local groups of NGOs collect and provide relevant data for site designation, management plans and monitoring conservation status. According to the German PAF (BMUB and BfN, 2013) the monetary value of voluntary activities is of a similar magnitude to the funding provided by state authorities, foundations and others. For example:

- In 2010 NABU registered 37,000 volunteers, contributing more than three million hours of work (DNR, 2012). At the time, NABU had 445,000 members in all Länder. By 2014 NABU had 540,000 members and supporters in 2,000 groups. NABU's Federal Office estimates that about 150.000 volunteer hours each year are devoted to designation and maintenance of protected areas, with a monetary value equivalent to EUR 2.25m.
- BUND (Friends of the Earth Germany) registered 34,000 volunteers, working a total of 2.8 million hours in 2010, of which 77% involved practical conservation measures (DNR, 2012). BUND reports that 4.5 million hours of volunteer work contributed to Natura 2000

implementation in the period 2010-2012.

- More than 6,000 volunteers support the monitoring of birds, which is inter alia the basis for reporting under the provisions of the Birds Directive (Sudfeldt et al, 2012).
- Many local groups are engaged in maintaining Natura 2000 sites, such as in Bavaria (Kraus and Schlapp, 2013).

Estonia: The Estonian Fund for Nature has been leading nature conservation volunteer camps on Natura 2000 sites for 15 years. The camps are organised so that volunteers from different backgrounds can help with habitat restoration and maintenance works like shrub cutting, mowing, and ditch management. Volunteer camps can be expensive to organise and are not necessarily cheaper than undertaking the work with specialist machinery, but can provide considerably greater social benefits, particularly where they engage positively with local communities. Studies of environmental volunteering show that urban people appreciate nature conservation efforts much more if they have been involved directly as volunteers.

Ireland: Bat Conservation Ireland has found using volunteers to carry out bat surveys to be cost-effective. The bat monitoring scheme, which was set up in response to the Habitats Directive, has fostered a culture of social participation in Ireland. More than 7,000 volunteers contributed over 20,000 hours to Bat Conservation Ireland bat monitoring schemes from 2003–2014.

UK: Many of the measures required to implement the Directives in the UK are undertaken in partnership with environmental NGOs (such as the Wildlife Trusts), supported by a strong volunteer community. The UK's approach to biodiversity surveillance and monitoring invests with partners in long-term schemes, most of which depend on the contribution of significant amounts of time and effort by skilled volunteers. Schemes are sufficiently widespread and systematic to allow assessment of trends in distribution and/or population, as well as analysis for information relevant to a wide range of policies.

Source: Evidence gathering questionnaires submitted by NABU, Estonian Ornithological Society, An Taisce and DEFRA.

6.5.3.14 Results from the online public consultation

The examples of cost-effective implementation highlighted above are not aligned with responses to the online public consultation, whose Q24 asked whether different aspects of the Directives and their implementation have become more efficient over time. This question appeared in Part II of the online consultation, in which the majority of respondents highlighted the costs of the Directives, and in which there was clear evidence for organised campaigning against the Directives. The majority of respondents expressed the view that the implementation of the Directives at national, regional or local level has become less efficient over time, compared to 20-21% who stated that it had become more efficient. On the other hand, management of the Directives at EU level, together with their interaction with other laws and policies at both EU and national level, were considered by the majority (around 57%) to remain unchanged, although a notable proportion (11%-15%) stated that they did not know the answer. However, the online public consultation did not reveal the reasons for these responses.

Table 23 Results of Q24 of the online public consultation

Q24: Have any of the following become more or less efficient over time?

	Less efficient	The same	More efficient
How the Directives are managed at EU level	10%	57%	18%
How the Directives are implemented nationally	55%	16%	21%
How the Directives are implemented regionally	54%	17%	21%
How the Directives are implemented locally	54%	18%	20%
Interaction with other EU law & policies	12%	57%	16%
Interaction with other national law & policies	16%	56%	16%

6.5.4 Key findings

The evidence collected, particularly the responses by stakeholders to the evidence gathering questionnaire, reveals numerous examples of good practice in cost effective implementation of the Directives:

- A wide range of factors were identified by stakeholders as contributing to cost-effective implementation. The most frequently cited examples from the evidence gathering questionnaire refer to: the role of participation, consultation and stakeholder engagement to develop shared understanding and guide implementation; strategic planning approaches to manage conservation and other land uses; provision of guidance to stakeholders affected by the Directives; coordinated collection and sharing of information to reduce information costs; and partnerships and joint initiatives between industry, NGOs and the nature authorities to meet common objectives.
- EU wide reviews of implementation of Article 6(3) of the Habitats Directive identify similar factors that contribute to cost-effective implementation.
- In some Member States, reviews of implementation have helped to identify initiatives that can improve cost effectiveness. A strategic review in England, for example, created initiatives to facilitate nationally important infrastructure projects, and to improve the quality, quantity and sharing of data, the 'customer experience' for developers, implementation processes and the streamlining of guidance.
- Some industrial sectors – notably the ports and renewable energy sectors - provide a wealth of evidence and examples of more cost-effective implementation. This is because their development has become dependent on the identification of efficient solutions that work within the requirements of the Directives.
- While the evidence and examples demonstrate that there has been considerable progress towards cost-effective implementation, this is not reflected in the online public consultation, where stakeholders expressed the view that implementation is becoming less efficient at local, regional and national level but no data was captured on the basis for these opinions.

6.6 Y.6 - What are likely to be the costs of non-implementation of legislation?

6.6.1 Interpretation and approach

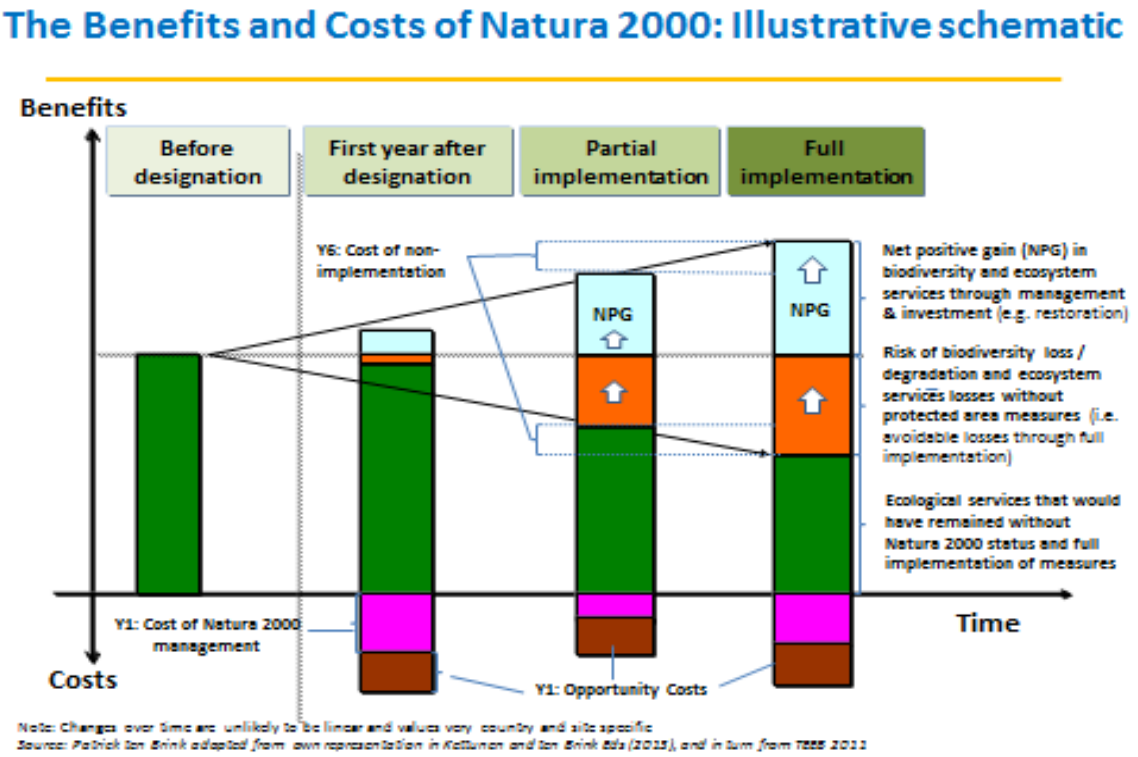
This question directly explores the counterfactual (as discussed in section 2), considering the net benefits of the Directives by assessing the likely costs of failure to implement them.

Non-implementation would cause the Directives to fail to meet their stated objectives (general, specific and operational, as set out in the intervention logic in section 2), or to achieve their intended results and impacts, having potential adverse impacts on species and habitats in the EU. In such a situation, the benefits of the Directives would not be fully delivered (see section 6.1 for further discussion). Non-implementation could also be expected to impact on other policies, given the synergies across policy objectives, as well as a range of socio-economic impacts related to the flow of ecosystem services to citizens, society and the economy. The effects of non-implementation can be taken to relate to:

- The consequences of non-delivery of the overall objectives of the Directives with respect to species and habitat conservation.
- The implications for EU policy priorities, including those set out in the EU Biodiversity Strategy, and in particular the headline 2020 biodiversity objective.
- The socio-economic impacts stemming from a loss of certain ecosystem services, leading to higher costs to citizens, society and EU economies (e.g. costs of clean water supply or flood management). There may also be lost income or missed opportunities for economic development (e.g. from tourism and recreation), as well as effects on communities and wellbeing.
- Potential knock-on effects with regard to other national and EU policy objectives (e.g. health, cohesion, climate mitigation and adaptation, water, marine and food security).

Non-implementation is, however, unlikely to lead to the loss of all benefits provided by the species and habitats protected by the Directives, as, even in the absence of the Directives, some degree of protection for nature would continue to be provided by national conservation policies in the Member States. While non-implementation would be expected to reduce the level of protection and conservation management activity, adverse effects on sites and species would occur gradually rather than immediately (Figure 18). The costs of non-implementation, therefore, were examined with respect to a counterfactual that considered the consequence of a failure to implement the specific provisions of the Directives, rather than an entire loss of nature in the EU.

Figure 18 The benefits and costs of Natura 2000 under different implementation scenarios: Illustrative schematic



The main judgement criteria considered in addressing the question were:

- Predicted impacts of non-implementation on habitats and species of Community interest, and on wider biodiversity and ecosystem services.
- Predicted impacts of non-implementation on the benefits of the Directives on eco-system services.
- The nature and value of potential costs and benefits from these impacts.

6.6.2 Main sources of evidence

Evidence of costs of non-implementation of legislation is available from:

- Studies of the costs of policy inaction with respect to biodiversity, such as those completed by the OECD (OECD, 2008; OECD, 2012a), Braat et al. (2008) and ten Brink et al. (2009), as well as earlier papers on COPI (Heal, 2005), and wide cost of non-implementation studies (COWI et al, 2011).
- 68 responses to the evidence gathering questionnaire, providing views, judgements and evidence on the costs of non-implementation.
- Studies on the benefits of biodiversity (see section 6.1 for details).
- Evidence of the benefits of biodiversity (see sections on effectiveness for details).

While evidence shows the benefits of the sites and species protected by the Directives (see section 6.1), no exact consequences of non-implementation have been mapped, although international studies of the costs of policy inaction provide some illustration of the possible effects. The evidence gathering questionnaires provided a (limited) set of cases, mostly through qualitative examples based on the judgements of stakeholders.

6.6.3 Analysis of the question according to available evidence

6.6.3.1 Evidence from existing studies

Achieving the full benefits of the Directives depends on managing the pressures on habitats and species in the EU, and taking active measures to achieve Favourable Conservation Status. Non-implementation would therefore be expected to result in the gradual erosion of the benefits identified in question Y.1 (see section 6.1), as well as potentially imposing additional costs on society and the economy. Insights from existing studies suggest that:

- Cost of policy inaction (COPI) studies and wider literature show that biodiversity loss and degradation lead to ecosystem service losses, and to a range of important social and economic costs, from losses of carbon storage, soil quality, clean water, air purification, recreation and tourism. Braat et al (2008) examined the losses of ecosystem services resulting from ongoing losses of biodiversity globally, estimating an 11% loss of natural areas and about 18% degradation overall (across land use designations) in the world from 2000 to 2050, leading to an increasing loss of ecosystem service flow from lost natural capital. Each year, the global loss of natural areas and wider degradation was estimated to lead to EUR 50bn loss (loss of carbon stock and seven other services); these lost services accumulate in value over time, as additional biodiversity loss is incurred, and as the value of the loss of services grows (linked to economy, population, climate impacts).
- The OECD (2012a) report on the Consequence of Inaction presents data on the baseline for biodiversity in OECD Europe, showing that it is not only worse than other regions of the world (though comparable to Japan and Korea), but that, without due action, it is expected to degrade further (~23.5% degradation in 2050 relative to 2010 levels).
- A global study by PBL et al. (2010) on the different measures to halt global biodiversity loss estimated that a move from 2010 levels of worldwide protected area coverage (~13%) to a 20% coverage (the Aichi target for 2020 is 17%), could avoid 10% of global biodiversity loss. It also explored a range of other measures needed to halt biodiversity loss (climate mitigation, agricultural practices and diet), underlining the importance of looking at synergies with other policies, and stressing that any assessment of non-implementation should also look at issues and policies in other sectors.
- The ten Brink et al (2011) report on the benefits of the Natura 2000 network developed a first illustrative estimate of the total benefits from the ecosystem services flowing from the (terrestrial) Natura 2000 network as a whole. These were valued at EUR 200-300bn per year across a range of ecosystem services. No study has attempted to make a detailed estimate of the share of that value that would be lost per year through non-implementation of the Birds and Habitats Directives. However, inaction leading to a 1% loss of services would lead to an indicative loss of services worth EUR 2-3bn per year. These annual losses would accumulate over time.
- A study on the costs of non-implementation of EU environmental legislation completed by COWI et al. (2011) noted that there would be adverse effects on a variety of sectors (including agriculture, forestry, fisheries and tourism), ecosystem services, and biodiversity in the EU and globally. The report speculated that the annual cost of non-implementation of the acquis with respect to nature and biodiversity alone could reach as much as EUR 50bn in the EU (taken from global estimates, based on the EU's share of global GDP, timescales not stated

and no workings given), but conceded that this number was very uncertain and may be overestimated. It should therefore be treated with great caution.

The costs and lost opportunities from inaction vary according to national context and depend on the state of biodiversity and the effectiveness of conservation approaches and other policy measures in place. Without the Directives, the costs of inaction would therefore vary considerably across the EU.

6.6.3.2 Responses to the evidence gathering questionnaire

68 respondents to the evidence gathering questionnaire answered question Y.6. Of these, 94% (64 respondents) argued that there would be costs and/or lost benefits from non-implementation, with just under one-third (21 responses) providing quantitative evidence to support their claims. Of the four other responses, all from private sector representatives, three did not directly address the question, while one argued that there would be benefits if the Directives were not implemented, because decision-making would be faster, but did not provide evidence to support this claim.

The consequences of non-implementation most frequently identified in the evidence gathering questionnaires relate not only to reduced conservation outcomes and ecosystem services, but also adverse impacts on tourism and economic activity, a loss of legal certainty, and increased costs via legal actions, fines, disputes and delays in development. The types of costs most frequently cited in the 68 responses were:

- A loss of biodiversity or nature conservation benefits (56%).
- A loss of ecosystem services (35%).
- A loss of jobs / tourism / economic activity (25%).
- A loss of legal certainty for industry/ developers, with related conflicts, delays and administrative burdens (25%).
- A loss of benefits from coordinated EU action, in terms of the ability to address trans-boundary conservation issues, protect migratory species and/or maintain a level playing field (15%).
- Other costs or effects mentioned by three or more respondents included less stringent protection/ a reduced focus on Favourable Conservation Status (6), the risk of unsustainable development (6), reduced funding (5), a failure to meet international targets (3) a loss of knowledge and scientific evidence (3), and adverse effects on the EU's image and international reputation (3).
- Eight of the 68 respondents argued that these lost benefits would be limited, as nature conservation efforts would be expected to continue at national level.

6.6.3.3 Examples of costs of inaction given in evidence gathering questionnaire responses

The Evidence gathering questionnaire responses also gave a number of specific examples of the consequences for biodiversity, ecosystem services and the economy of a failure to implement the Directives fully.

Box 66 Examples of the costs of inaction

Lake Koronia, Greece: Greece was convicted by the European Court of Justice (CJEU) (Case C-517/11) for failure to protect the SAC from pollution and water abstraction after the widespread death of bird and fish species and significant reduction of the quantity and quality of water. Greece had to undertake an ambitious and costly master plan for the restoration of the lake, co-funded by EU programmes.

Lovrenška jezera, Slovenia: A study estimated that if the area is managed sustainably and ecosystem services remain at their current level, the net value would be at least four times higher than if the area were be managed unsustainably. http://www.natreg.eu/pohorje/uploads/datoteke/Vrednotenje%20Lovrenških%20jezer_final%20julij%202011.pdf

Black Sea Coast, Bulgaria: the Bulgarian Tourist Chamber expressed concern that non-implementation of the Natura 2000 network could lead to unsustainable over-development of the Black Sea coast, with adverse effects on tourism. They stated that destruction and over-exploitation of rivers by small hydropower plants and minerals extraction, would cause a loss of recreational fishing, tourism, and traditional mountain farming, over-exploitation of forests, and damage to the water supply functions. The Directives, they believed, make an essential contribution to sustainable development, tourism and the protection of water resources.

Basses Vallées Angevines, France. Without the Birds Directive - and the associated funding available through agri-environmental measures and LIFE - the principal breeding site in France for Corncrake would have almost completely disappeared due to the intensive plantation of poplar trees. The LPO bought more than 400 ha of grassland through a LIFE project on the species. The conservation of these large areas of wet grassland upstream from the town of Angers also helps to protect the town from flooding by the Rivers Maine and the Loire. The Directives have been instrumental in guiding the development of major infrastructures in France with measures to avoid destruction and compensation for biodiversity (e.g. the high speed train track (LGV) Tours-Bordeaux, which plans to put in place 3500 ha of compensatory measures, particularly for the Little Bustard).

Peatlands, Ireland*:* An example of significant financial and potential health costs relates to drainage of, and peat extraction from, peatland Natura 2000 sites. Brown peaty water – caused by the run-off of dissolved organic carbon (DOC) from degraded peatlands - reacts with chlorine during the drinking water treatment process in Ireland to create trihalomethanes, a group of chemicals containing possible carcinogens (Jennings et al, 2006). In addition, people find drinking brown, peaty water unpleasant, requiring the costly removal of humic substances (e.g. DOC from peat) during the water treatment process. The presence of DOC in water is exacerbated by drainage and extraction from peatland Natura 2000 sites. Concern over the quality of drinking water is also expected to lead to greater use of bottled water and hence higher costs to citizens. This has been the subject of a CJEU ruling against Ireland under the Birds Directive, for severe overgrazing of uplands/peatlands, damage to SPA and the wider habitat of Red Grouse (Article 3 of the Birds Directive).

Italy: Part of SPA ITA030042, near Messina, is characterised by steep mountains, and is very fragile and prone to landslides. Constructions (and annexed activities) can easily distort the fragile equilibrium of the slope and cause a landslide. New developments have often been approved in the SPA without carrying out an Appropriate Assessment (AA), resulting in several landslides and causing damage to property and human life, as well as the expenditure of public money to solve the problem. The area has been affected by more than 500 landslides, including an October 1st, 2009 landslide during strong rain (400 mm within 3 hours), in which 37 people died. In another similar accident four people died during flooding inside the SPA on 27th September, 1998. In addition to the human cost, the cost of damage related to non-implementation of the Directives was estimated at EUR 250m.

Vorarlberg, Austria: Failure to implement the Directives can cause legal uncertainty and delays in procedures, which in turn delay investments and can increase costs. For example, the planning and assessment of infrastructure projects require reliable knowledge of the official boundaries of Natura 2000 sites, the precise location of species and habitats of European interest, as well as local conservation objectives. Late Natura 2000 site designation causes delays and can significantly increase costs, particularly in large projects. For example, the planning and construction of Highway S18 in Vorarlberg has been ongoing since 1995 owing to the lack of an SPA designation. Detailed cost estimates in 2014 found that a 10-year delay in construction would entail an extra EUR 139m in costs, purely as a result of inflation (construction costs in 2015: EUR 497m;

construction costs in 2025: EUR 636m).
Source: Evidence gathering questionnaires submitted by Ministry of Reconstruction of Production, Environment and Energy (Greece), Ministry of the Environment and Spatial Planning (Slovenia), Bulgarian Tourist Chamber, LPO/ BirdLife France, An Taisce (National Trust for Ireland), LIPU-BirdLife Italy, and Umweltdachverband (Austria).

Box 67 Possible consequences of non-implementation at Member State level – further examples from the evidence gathering questionnaires and National Missions

The Netherlands: Given the high level of overlap of the Natura 2000 network with the National Ecological Network, the authorities state that in the absence of the Directives much of what has been delivered would still have been delivered. The costs of non-implementation would not necessarily, therefore, be substantial. However, it was also noted that Natura 2000 gives higher levels of protection, places a greater emphasis on management and affords benefits through co-financing.

Germany: The authorities comment that incomplete and delayed implementation has led to legal uncertainty in Germany, causing numerous infrastructure measures to be blocked for some time. It can be assumed that this has generated significant costs for companies and administrations, which could have been avoided had earlier designations taken place. The authorities also noted that had the Directives not been in place, the protected areas coverage in Germany - which now stands at 15.4% of the land area - would more likely have been 4.3%, based on the nature protection areas and national parks at that time. The difference of over 10% of land area is not just an example of the benefits of implementation (see question Y.1), but gives a scale for late designation creating costly legal uncertainty and delays for investments (see Austrian evidence gathering questionnaire, above).

Poland: Poland has invested heavily in infrastructure since EU accession. Both the authorities and NGOs expressed the view that in the absence of the Directives, or their non-implementation, these investments would have been highly detrimental to nature conservation in Poland, leading to considerable losses of benefits and ecosystem services.

Spain, Malta: In both countries, the nature authorities and NGOs argue that non-implementation would result in substantial costs in terms of the loss of the benefits that the Directives deliver for biodiversity and ecosystems. No opinion was expressed by business representatives in these countries.

UK: DEFRA stated that the costs of non-implementation would be significant in terms of loss of intrinsic value, sustainability, non-use value, option-value, losses of ecosystem service benefits and increased costs to society from the failure of ecosystem services. However, it also argued that, given its strong national legislation to protect habitats and species, not all of these costs would automatically be incurred in the absence of the Directives.

Sweden: As well as foregoing the benefits of implementation, the NGOs argue that slow or non-implementation of the Directives will result in costly uncertainties, delays to development and a need for additional surveys, as well as fines and legal proceedings. In contrast, the LRF (Federation of Swedish Farmers) argued that costs would be minimal, as Sweden has an ambitious nature conservation policy independently of the Directives, and, in the absence of the Directives there would be less outside interference, allowing priorities to match national conditions, speeding up decision-making and reducing infringement procedures.

Slovakia: The NGO BirdLife Slovakia 'argued that non-implementation can cause planning errors and unnecessary delays, leading to extra costs for the developer. The example of the D4 highway construction in South-west Slovakia and its implication for Natura 2000 sites with respect to compensation measures, indicates that a clear framework and effective communication result in reduced costs and greater efficiency. In a relatively short time, well-targeted compensation measures have been designed as per Article 6(4), in consultation with all relevant stakeholders. On the other hand, the lack of approved management plans causes uncertainty and difficulties in assessing investment projects. As further additional studies are requested, delays become more common.
Source: Evidence gathering questionnaires submitted by Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (Germany), Ministry of Economic Affairs (Netherlands), BirdLife Malta, MEPA (Malta), SEO (Spain); Ministry of Agriculture, Food and Environment (Spain), DEFRA (UK), World Wide Fund for Nature Sweden, LRF (Sweden), BirdLife Slovakia; Missions to Member States (Germany, Netherlands, Malta, Poland, Spain).

6.6.4 Key findings

There has been no systematic assessment of the impacts of non- or partial implementation of the Birds and Habitats Directives across the EU, and therefore no estimation of the costs of inaction. However, the available evidence and expert opinions suggest that non-implementation would give rise to a range of costs and lost benefits. These would vary by Member State, particularly because of differences in the extent of national nature conservation laws:

- Non-implementation or partial implementation of the Directives will result in the gradual erosion of the benefits where the loss of biodiversity is not halted, i.e. the flow of a range of ecosystem services to citizens and the economy, from water purification and supply, flood control, air pollution, noise mitigation and climate change mitigation, to cultural services such as recreation and tourism, as well as education and scientific understanding. Non-implementation will also lead to missed opportunities for the growth of benefits in protected areas, when management and investment do not take place.
- Non-implementation will therefore impose additional costs on society and the economy to substitute for the loss of services, e.g. higher costs of pre-treatment and provision of water, greater defensive expenditures against flood risk, and higher costs of adaptation to climate change.
- The non-implementation or late implementation of the Directives (i.e. late designation of Natura 2000 sites) has also been linked by a range of countries to the risk of deferred investment due to legal uncertainty, which can lead to both higher costs and delayed benefits from these investments.

The above consequences of non-implementation are reflected in the evidence gathering questionnaires, with the most frequently cited impacts being reduced conservation outcomes, a decline in ecosystem services, adverse impacts on tourism and economic activity, a loss of legal certainty, and increased costs relating to legal actions, fines, disputes and disruptions in development. Non-implementation of the Directives would also lead to overall impacts on sustainable development.

Global studies of the cost of policy inaction (COPI) show that biodiversity loss and degradation leads to ecosystem service losses, which in turn lead to a range of important social and economic costs. The studies (and question Y.1 responses) show that effective implementation of protected areas can significantly contribute to halting the loss of biodiversity and loss of services, but also that a wider range of measures are required across sectors in order to halt biodiversity loss.

The actual level of costs of policy inaction on biodiversity, in the context of non-implementation of the Directives is closely linked to the questions of what would have happened without the Directives (when looking retrospectively at the point at which the Directives were agreed) and what would happen now should the Directives be removed, i.e. an examination of the counterfactual then and now. In the former case, two Member States (Netherlands and the UK) have noted that the benefits from the Directives would have largely arisen anyway through national policies, but others (e.g. Germany and Poland) described the many benefits arising from the Directives (see section 6.1 for further discussion). This underlines the diversity of contexts across the Member States, and how, - as with many pieces of legislation - the Directives will drive greater benefits in some countries than others. Similarly, non-implementation could be expected to have different impacts across Member States, depending on the development pressures on protected areas and government responses. Having EU nature legislation therefore helps to ensure a more level playing field across the EU, supporting the internal market (see section 8.5 for further discussion).

6.7 Y.7 - Taking account of the objectives and benefits of the Directives, is there evidence that they have caused unnecessary administrative burden?

6.7.1 Interpretation and approach

The EC Better Regulation Toolbox (European Commission, 2015) defines administrative burdens as those costs borne by businesses, citizens, civil society organisations and public authorities as a result of administrative activities performed to comply with information obligations included in legal rules.

Additional administrative actions are often necessary to meet the requirements of EU legislation. Addressing the operational objectives of the Nature Directives, as set out in the model of intervention logic in section 2.3, is dependent on the collection and transfer of information, and therefore requires inputs in terms of financial, human and institutional resources. For example, Article 6(3) of the Habitats Directive requires that any plan or project likely to have a significant effect on an SAC be subjected to Appropriate Assessment (AA), in view of the site's conservation objectives. While such assessments are designed to ensure that potential adverse impacts are identified and addressed, they inevitably give rise to administrative burdens. Significant burdens also often arise from species protection rules under both the Birds and Habitats Directives, which require that the effects of developments and other activities with the potential to impact on protected species are assessed and mitigated.

Administrative burdens are reflected in a range of costs, including:

- Costs to the authorities of implementing and administering the Directives.
- Costs to developers and other stakeholders in providing the information required to achieve compliance (e.g. commissioning surveys, assessments and monitoring), as well as the time and resources required to comply with administrative processes.
- Costs resulting from delays and uncertainties caused by the administrative process, which may increase financing costs and/or lead to opportunity costs by delaying or affecting economic activities.

In assessing administrative burdens, it is important to examine the additional information obligations resulting from the Directives themselves, rather than existing national rules.

Implementation of the Directives is highly dependent on information, making significant administrative burdens inevitable if the objectives are to be met. The extent to which unnecessary burdens could be avoided or reduced, while still meeting the objectives of the Directives, is examined here. The evaluation collected evidence on both the extent of administrative burdens, as well as the efficiency of proposed alternatives.

The main judgement criteria applied in answering this question were:

- The type, nature, extent and incidence of administrative burdens.
- Comparison of burdens with the benefits achieved.
- Necessity of these burdens in meeting the Directives' objectives.
- Examples of burdens which might be avoided or reduced.

6.7.2 Main sources of evidence

The main sources of evidence included:

- A limited number of EU studies examining the implementation of Article 6 of the Habitats Directive, including the Ecosystems (Sundseth and Roth, 2014) report on Article 6(3) and the Farmer et al. (Farmer et al, 2015) study on the time taken to complete AAs and associated permitting processes.
- A limited number of Member State reviews, including the review of implementation of the Habitats Directive in England, and national estimates of administrative costs in the Netherlands.
- Individual case studies and examples of administrative burdens provided in the evidence gathering questionnaire. Of the 91 respondents to this question, the majority provided opinions, with 63 providing examples or qualitative evidence and 16 providing quantitative evidence.
- The National Missions to Member States, which examined evidence of administrative burdens.
- Views expressed in the online public consultation (Q21-Q22 addressed administrative costs).

6.7.3 Analysis of the question according to available evidence

6.7.3.1 EU studies

EU studies indicate that environmental legislation accounts for less than 1% of the overall administrative burden on business in the EU (High Level Group on Administrative Burdens, 2014). There is also evidence that one-third of administrative burdens are caused by inefficient public and private administrative practices, and that perceived burdens are higher than actual ones (European Commission, 2012c).

An earlier study of the total costs of a range of environmental policies (including the Habitats Directive) for the manufacturing industry in the EU found that total annualised costs (of which administrative costs are only one element) are typically less than 2% of production value for those sectors most affected (Vercaemst et al, 2007).

A study by Sundseth and Roth (2014) examined evidence of the extent of administrative burdens with respect to AAs required for plans and projects under Article 6(3) of the Habitats Directive. The review concluded that the AA procedure, like other administratively regulated permitting procedures, imposes burdens on those involved, which increase if it is not correctly implemented. While there was insufficient evidence to suggest that the burdens were either high or excessive across all countries, plans and projects, the review acknowledged that this might be true for particular cases. More specific findings included:

- The Article 6(3) permitting procedure creates an administrative workload for those involved. It has a financial cost, not just in terms of carrying out or reviewing the AA, but because additional baseline surveys may also be required, the plan or project may need to be reworked and/or suitable mitigation/compensation measures introduced to redress the potential impacts identified.
- It is extremely difficult to assess this 'burden' in any objective way. The study was unable to find any accurate information or quantifiable data on the specific cost of the AA procedure itself, despite raising this question systematically during the interviews with the competent authorities, NGOs and EU level key economic sector associations. Member States do not collect the necessary information, and/or are

unable to distinguish the costs of AA from EIA and other environmental considerations.

- The costs of AA can be extremely varied, reflecting the wide variations in projects. Some might take less than half a day to process, while others could take several years and cost significantly more.
- The costs of EIA generally increase proportionally as a function of the size of the project, but this is not necessarily the case for the AA procedure, whose cost is closely linked to the range of intrinsic and extrinsic factors operating within the Natura 2000 site in question.
- The best documented examples relate to major infrastructure projects. These are relatively rare compared to all the other types of smaller plans and projects that go through the AA procedure, but they are often complex and likely to cause impacts, therefore more expensive to assess under Article 6(3). Even so, costs are often difficult to separate from those of other requirements (EIA/SEA, local archaeological or landscape issues) or public consultation processes (not obligatory under the AA procedure).
- In Germany, for example, nature protection is generally estimated to amount to 2-5% of infrastructure costs but this is considered an integral requirement of any major infrastructure project in accordance with national as well as EU policies, and the specific effects of the Nature Directives cannot be extracted.
- A more accurate assessment would depend on gathering further information in a more systematic and objective manner on the actual burden of the AA procedure across a wide range of different types of plans and projects.

The number of countries for which there were accurate statistics about the use of the Article 6(3) procedure was small (Bulgaria, Germany, Slovenia, Spain and the UK). These statistics generally supported the Sundseth and Roth findings 'that the majority of projects are screened out because they are considered unlikely to have a significant effect on Natura 2000 sites. Of those that do go through a full AA, most are approved because the AA concludes that there is no adverse effect. The majority of the rest are reworked or redesigned and then approved. Only a small proportion of projects are actually abandoned because the AA has concluded an adverse effect and even fewer use the derogation procedure under Article 6(4).' (see section 6.1 for the statistics on opportunity costs.)

Given the gaps in data, the study recommended that Member States should collect statistics in order to develop a thorough understanding of the scale of use and application in practice of Article 6(3), as well as the extent to which it acts as a general block on development. This in itself would constitute an administrative burden but could help to inform more efficient implementation in future.

The study identified a number of factors that can influence the cost of the AA procedure:

- The size and nature of the plan or project - costs may be more significant for small projects.
- The features of the Natura 2000 sites and their sensitivity to potential impacts from plans and projects.
- The quality of the AA and level of dialogue and consultation early on in the decision-making process.
- Public opinion.
- Inefficient and inconsistent AA procedures.

A study by (Farmer et al, 2015), analysing differences in the costs of implementing EU policy, included a case study on decision-making under the Habitats Directive, specifically

examining the time taken for project or plan permitting decisions under Article 6(3) by competent authorities. Delays in permitting are widely cited as imposing costs on businesses, because they tend to require increased time inputs and professional fees, delay revenues, increase financing costs and lead to greater uncertainties for developers. Case study research in six Member States (Denmark, Spain, Malta, Netherlands, Romania and the UK) found that there is no 'typical' situation that presents an average view of decision-making timescales, which were found to range from just over 100 days to over three and a half years. All cases took longer than the timescales suggested in Member State guidance or requirements (where these exist). The research found limited systematic logging of decision timescales and associated costs across Member States, concluding that better tracking of such timescales and costs would enhance the ability to evaluate such issues in the future. The results need to be interpreted with caution as they refer to small number of cases, some of which were subject to unusually lengthy procedures.

Key factors identified as influencing the timelines of decision-making included: lack of communication between the applicant and the competent authority; a lack of resources/expertise within the competent authority; interactions with parallel or integrated EIA/SEA processes; poor quality data and AAs; and large/complex/novel projects. Some influencing factors were found to be outside the direct control of the competent authorities. The research also identified examples of best practice in dealing with some of the above-mentioned factors that delay decision-making, addressing, to some extent, each of the key factors affecting timescales. These practices included strong strategic planning systems to foresee and resolve potential conflicts (Denmark); streamlined assessment and permitting procedures (Enterprise Zones and Nationally Significant Infrastructure Projects in England); technical guidance and protocols (mussels fisheries in Denmark and dredging of ports in England); and accelerated appeal procedures (Netherlands). However, insufficient capacity and skills in some administrations was found to be a major constraint on improving implementation.

6.7.3.2 National studies

Quantitative assessments of administrative burdens associated with the Directives have been undertaken in Netherlands and the UK.

In 2011 the independent agency SIRA Consulting conducted a review of the administrative burden of the Dutch laws that implement the Birds and Habitats Directives. The review estimated that the annual administrative burden to business of applying for permission or exemption under the law is:

- For Natura 2000 areas: EUR 11.6m.
- For the protection of birds and species: EUR 8.2 m.

The overall administrative burden to business relating to the two Directives was therefore estimated at EUR 19.8m each year, and the study did not consider whether or not any of these burdens could be considered unnecessary. A follow-up study was conducted in 2014, estimating that these costs had almost doubled to EUR 39m. The reason for this increase is not entirely clear, but during the National Mission to the Netherlands the nature authorities indicated that it reflected a real increase in the burden of permitting procedures and not just a difference in the data collection methods used.

The largest element of this administrative burden is the cost of ecological surveys, which are mandatory in applications for a permission or exemption under nature legislation. These costs can be relatively high in some cases, especially for small enterprises with a relatively small project. Discussions with the Dutch authorities during this evaluation suggested that a slight decline in administrative burden might be expected in the future. In addition, the authorities estimated that approximately 200 staff are employed in the administration of the Directives nationally, at an annual cost of around EUR 10m. These estimates of burden, while significant, are relatively small compared to overall estimates

of management costs (estimated at EUR 315m p.a. in the Netherlands) and the benefits of the Directives (see response to question Y.1 on costs and benefits).

A study by DEFRA UK (DEFRA, 2015) on the costs and benefits of regulations for agriculture, food and the environment in England estimated that they imposed costs of GBP 5.8bn (EUR 8.0bn) on business annually, with administrative burdens comprising 14% of this total. However, for biodiversity, direct costs to business were put at only GBP 32m (EUR 45m) per year, of which administrative burdens accounted for 15%, while EU regulations are estimated to account for 84% of business costs. This suggests an overall administrative burden relating to EU biodiversity legislation of approximately GBP 4.8m (EUR 6.7m), equivalent to about 0.5% of the overall administrative burdens of DEFRA regulation. These figures are very low compared to the estimates for the Netherlands, and no details are given about how they were calculated. The study did not consider whether or not these burdens were necessary.

In November 2011 in the UK, the Chancellor of the Exchequer announced a review of the implementation of the Habitats and Birds Directives in England (and relevant offshore waters), with particular reference to the burdens placed on business by the authorisation process for development proposals. The review concluded that: *'In the large majority of cases the implementation of the Directives is working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained. For instance, Natural England receives around 26,500 land use consultations annually; of these, they "object" to less than 0.5% of these on Habitats Regulations grounds. Most of these objections are successfully dealt with at the planning stage. However, some cases do encounter delays for one reason or another. Although the Habitats Directive may only be one contributory factor, the evidence presented to the Review, and a number of well publicised individual cases, showed that costs and delays for developers can arise in the implementation process.'*

The review identified four areas of improvement for implementation of the Directives in England:

- The complexity of the legislation and guidance: The transposing terrestrial regulations, covering approximately 134 regulations and seven schedules over 94 pages, and guidance (EU, national and non-Government) amounted to over 60 documents totalling over 1,600 pages. This can be difficult for competent authorities to navigate and is daunting for developers, large and small. It also reinforces a perception of inconsistency and lack of transparency in the process.
- The complexity of the authorisation process for development: Responsibilities in the Directives fall across a range of bodies, each with potentially different priorities and levels of experience in dealing with the issues. Lack of coordination among these bodies can add to costs and delays.
- The availability and comparability of data: This has implications for every stage of the decision-making process, with uncertainty of evidence requirements and interpretation potentially increasing the risk of delay and higher costs. The shortage of baseline data is a particular issue in relation to the marine environment.
- The culture and capacity of all organisations involved in the process: While good practice exists, there is still scope to strengthen the customer-focused, collaborative culture in statutory bodies. Skills and capability gaps are evident in statutory bodies, developers and their ecological consultants.

These issues appear to arise largely from problems in implementation in England, rather than being a direct result of the Directives themselves.

Other conclusions were that:

- These issues were magnified in large scale projects and were particularly challenging in relation to offshore wind farms.

- Uncertain or weak data can lead to extra surveys being required and/or a more precautionary approach being taken on licence decisions, licence conditions and mitigation measures. This can cause increased costs and delays for developers.
- Improving the evidence base and making the data more accessible could deliver significant improvements for developers, reducing costs and uncertainty in the system, as well as enabling regulators to make more informed decisions.
- There is a particular need to address data gaps in the marine environment, given the scale of proposed offshore wind developments.
- Changes to evidence requirements, particularly late in the process, increase costs and delays with perceived minimal benefit to the environment.

Among the changes implemented in response to the review was a new process, overseen by the new Major Infrastructure and Environment Unit, for agreeing upfront the evidence requirements, timetable and gateways for 'top 40', and other nationally significant infrastructure projects which may present significant Birds and Habitats Directives issues (see section 6.5 for further discussion).

In Germany, the measurement of administrative burden is carried out with the Standard Cost Model (SCM) methodology. While no specific assessment of nature conservation has been made, environmental legislation accounts for less than 2.5% of the total administrative burden costs in the SCM measurement (response submitted by NABU).

6.7.3.3 Evidence from evidence gathering questionnaire responses and National Missions

In general the evidence gathering questionnaire responses and Member State consultations indicated that the Directives are seen to be working well in most Member States, and that while administrative burdens arise, in most cases they are considered necessary to meet the Directives' objectives. However, respondents also gave examples where they believed that administrative burdens are excessive, or could be reduced without compromising the objectives of the Directives.

91 responses to the evidence gathering questionnaire answered this question. The majority provided opinions (89) and qualitative evidence or examples of burdens (63), with a minority providing quantitative evidence (16). However, many of the quantitative responses were by NGOs and referred to the same studies of the overall administrative burdens of EU environmental legislation in general. 50 respondents (mainly NGOs and public nature authorities) argued that administrative burdens are necessary for the delivery of the objectives of the legislation, while 39 respondents (mostly private sector) argued that there are unnecessary burdens.

The most frequently mentioned types of burdens included:

- Delays – 12 responses.
- Survey costs – nine responses.
- Blocks on development – eight responses.
- General barriers to business – six responses.
- Monitoring costs – three responses.

The most frequently cited causes of high or unnecessary administrative burdens were:

- Implementation of the Nature Directives at national/regional/local level (including approaches to permitting, AA and species protection) – 21 responses.

- Complex and bureaucratic procedures and a lack of flexibility (both in EU rules and Member State implementation, including in relation to site designation, assessment of plans and projects, record-keeping, species protection, compensation, derogations) – 15 responses.
- Species protection rules (including requirements to protect widespread species) – 13 responses.
- Article 6(3) procedures (including excessive requirements for AA) – 14 responses.
- Reporting procedures at EU level – eight responses.
- Derogation procedures - five responses.
- Lack of capacity in authorities – five responses.
- Overly precautionary approach at national/local level – four responses.
- Misuse of the Directives by local interests opposing development ('NIMBYs') – four responses.
- Strict protection approaches – four responses.

6.7.3.4 Examples from the evidence gathering questionnaires and National Missions

The following examples – provided by stakeholders in their responses - describe the administrative burdens of species protection measures, assessments of plans and projects, infrastructure projects, and EU reporting obligations.

6.7.3.5 Species protection

Many of the stakeholders' concerns about administrative burdens related to the protection of species which are relatively widespread in some Member States, such as Great Crested Newt (in the UK, Sweden and Germany), Natterjack Toad (France and Germany), Sand Lizard (Germany), Maltese Wall Lizard (Malta), and various bat species (UK, Poland, Sweden and Germany). As these species are relatively widespread they are frequently encountered in the assessment of plans and projects and account for a significant proportion of the overall burdens related to species protection under the Directives. In addition to the evidence presented in question Y.4 (see section 6.4), some further examples of species-related burdens are given in the box below.

Box 68 Administrative burdens related to species protection

Czech Republic: The Ministry of the Environment argues that the general protection of all bird species according to Article 5 of the Birds Directive gives rise to disproportionate costs related to the regulation of killing, taking and disturbing birds. These costs include issuing superfluous derogations for destruction of empty nests which are not regularly occupied, care for injured individuals and research activities. In addition, the Directive is considered more restrictive than the Habitats Directive since there is no possibility to permit some activities for reasons of overriding public interest. Finally, annual reporting of derogations under Article 9 of the Directive gives rise to large administrative burdens, which the Ministry argues have no clear benefit.

Netherlands: Measures to protect common species – such as the Pipistrelle Bat and a variety of common bird species - can impose significant burdens. For Habitats Directive-listed species, the provisions require the entire species to be taken into account, even in cases where only some subspecies may be under threat. An example is the Jersey Tiger, of which the subspecies that occurs in the Netherlands is not under threat, is quite common, and can be found outside Natura 2000 sites. Nonetheless, every species must be included in every evaluation. The same is true of the fish *Cottus perifretum*, of which there appear to be more subspecies since its inclusion on the Habitats Directive list. Some of these subspecies are highly invasive, although *Cottus perifretum* is quite rare.

Sweden: Private sector consultees expressed concern about ongoing uncertainties in the national approach to implementing the Birds Directive, particularly with respect to developments such as wind farms and other activities with the potential to disturb wild birds. Cases often focus on the effects on individual birds rather than species populations, and uncertainties in dealing with such cases can delay developments and increase administrative burdens.

Source: Evidence gathering questionnaires submitted by Ministry of the Environment (Czech Republic), Ministry of Economic Affairs (Netherlands); National Missions.

6.7.3.6 Assessment of plans and projects

Responses to the evidence gathering questionnaire mirror findings from the literature that the burdens associated with AA vary widely across the EU, and that unnecessary burdens often result from problems of implementation at national and regional level.

Box 69 Unnecessary burdens caused by implementation problems

Belgium: The NGOs Natuurpunt and Natagora argue that unnecessary costs arise mainly from improper implementation, rather from the Directives themselves. As Flanders did not fully transpose the Directives into national legislation, AA has involved unnecessary administrative burdens, resulted in lengthy legal cases, and created significant uncertainty. The Deurganckdok case in the Port of Antwerp ignored the legislation, incurring avoidable costs of millions of euro. Recognition of the problem led to cooperation between the Port Authorities and the NGO Natuurpunt, to design ecological infrastructure in the port and develop a species protection action plan. The NGOs argue that cases like this highlight that strong and consistent implementation, underpinned by clear guidance, would help to reduce administrative burdens.

Ireland: The National Parks and Wildlife Service argues that there is a perception among some stakeholders that the Directives cause excessive delays and costs when an AA is required. This is particularly the case when a decision to grant consent (e.g. for planning permission) is appealed, or a judicial review is taken on the grounds that an inadequate AA has been undertaken by the decision-maker. However, in the authorities' experience, if due regard is taken of the requirements of the Directives, existing guidance on AA, the standards required and good ecological practice in research, survey and analysis, then many of these delays can be avoided.

UEPG, the European Aggregates Association, notes that some of its members have reported a smooth application of the Nature Directives, with no systematic challenges. UEPG cites several examples in Austria, showing the compatibility between aggregates extraction and Natura 2000 sites for various extractive operations. However, it argues that this is far from being the case in all countries. In parts of the EU, permits and extensions are being denied and existing quarries may have to stop operations. This can be explained by the variety of systems of land planning and management, and varied implementation of the Directives. UEPG argues that the Directives have led to some additional administrative burden, and that, although these might often be necessary to meet the objectives of the Directives, in some countries such as France, where several administrative levels co-exist, this has led to unnecessary administrative burden and delays. UEPG notes that it is difficult to assess the proportion of the burden that is due to the Nature Directives or caused by other environmental legislation, particularly for protected species, with the Bern Convention list, Natura 2000 lists and national lists creating a constraining environment for business. The lack of resources, training and expertise of some staff in planning authorities increases this unnecessary administrative burden, leading to an overly precautionary rather than pragmatic and informed approach.

Source: Evidence gathering questionnaires submitted by Natuurpunt/ Natagora (Belgium), National Parks and Wildlife Service (Ireland), UEPG.

Screening of plans and projects can, where effective, reduce administrative burdens by ensuring that AA is required only when necessary and when a positive outcome is likely. However, in some Member States, stakeholders argue that screening is required for an excessive number of developments, creating unnecessary burdens.

Box 70 Burdens associated with screening processes

Bulgaria: The Ministry for Environment and Water argues that many activities, mainly in urban areas, undergo unnecessary screening procedures causing administrative burdens for both the Member State authorities and citizens. Due to the broad nature and lack of exceptions in Article 6(3), and following infringement procedures against the country in 2009, Bulgaria's authorities have been forced to issue large numbers of statements for proposals that will not have adverse effects on the Natura 2000 sites. During the period 15.10.2010 – 20.02.2012, a total of 9,512 such statements were issued by the Ministry for Environment and Water and its regional inspectorates for proposals not having adverse effects on Natura 2000 sites. This work was completed by 20 employees, making it difficult for them to spend time on more important cases. Data from 2013 and 2014 show further increases in the number of screening procedures. The authorities argue that some exceptions could be allowed to these procedures without jeopardising the objectives of the Directives. The situation has resulted in the involvement of the European Court of Justice (CJEU) in many aspects of the Directives' interpretation and implementation, and required much research and guidance. It has also led to multiple lawsuits and appeals, sometimes with controversial outcomes.

Czech Republic: According to the Ministry of the Environment, the screening process requires anyone proposing a project that might affect a Natura 2000 site to submit a proposal to the nature authorities. This results in excessive numbers of proposals being submitted for 'insurance' reasons or as a requirement of EU funding, including many which will clearly have no adverse impact.

Malta: By contrast, Malta reports positive results from screening processes. It has reduced the burdens to developers relating to Article 6(3), by specifying zones for development and developing processes for pre-screening of development. This means that developers receive pre-application advice and information, reducing the risk of significant impact and resulting in EIA and AA taking place only in cases where a positive outcome is likely. This is supported by good information for applicants, including GIS mapping of sites and species. While costs are borne by the public sector, private sector interviews highlighted the need for transparency of pre-screening processes, including reporting any decisions about whether or not an AA would be required.

Source: Evidence gathering questionnaires submitted by Ministry of Environment and Water (Bulgaria) and Ministry of the Environment (Czech Republic); National Mission (Malta).

Member States also differ in their approach to aligning AA with EIA and SEA. Some Member States have found that integrating AA into existing EIA and SEA requirements can work efficiently, while in others this has created burdens.

Box 71 Administrative burdens related to EIA and SEA

Estonia: The Estonian Ornithological Society argues that the requirement to carry out AAs as part of EIA/ SEA procedures is problematic because of the length, complexity and costs of their EIA/SEA processes. This has led to systematic breaches of the principles of Article 6(3) of the Habitats Directive. In cases where the EIA/SEA would be necessary only because of possible effects to Natura 2000 sites, administrative decision-makers often avoid the official EIA/SEA procedure, and instead demand mitigation measures during screening, determining that a more thorough assessment of impact is not necessary. This runs contrary to the rules, and mitigation measures should not be taken into account when making decisions on initiating an assessment.

Czech Republic: The Ministry of the Environment argues that requirements for AA have not added significantly to the costs of undertaking EIAs. As AA is well integrated in the EIA process, where required, it adds some additional costs to the EIA. It is estimated that there has been only a 1.6% increase in the number of EIAs initiated (in cases with potential significant effects on a Natura 2000 site but where an EIA was not previously required). However, the obligation to carry out the AA can increase the duration and costs of the EIA. The experience with IROPI decision-making and compensatory measures pursuant to Article 6(4) of the Habitats Directive to-date also indicates that long delays in project implementation are caused by this procedure, particularly given procedural uncertainties, a lack of experience in this area and limited Commission guidance.

Finland: The Finnish Association for Nature Conservation reports that, after 20 years' experience, Natura 2000 assessments are now a normal part of daily spatial planning and EIAs, with professional consultants, planners and the courts well-versed in how to conduct them and interpret their results. A major cause of delays and costs is that businesses still lack knowledge and

information about which surveys and assessments should be done to make permit procedures smooth, rather than the fact that such assessments are required.

Source: Evidence gathering questionnaires submitted by Estonian Ornithological Society, Ministry of the Environment (Czech Republic), Finnish Association for Nature Conservation.

Scientific uncertainties relating to lack of data can increase the administrative burdens associated with the assessment of plans and projects, particularly where this causes the authorities to adopt a precautionary approach.

Box 72 Burdens caused by scientific uncertainty

Germany: The BDI argues that, particularly where there are scientific uncertainties and in the absence of management plans, the requirement to demonstrate that plans and projects do not have significant impacts can lead to an overly precautionary approach and excessive gathering of evidence, adding to cost burdens for the project instigator and causing unwieldy and long authorisation procedures. Examples given to support this argument include:

- A proposed quarry expansion of 3.5 ha which required surveys of 120 ha of Sand Lizard habitat to assess the size of the local population.
- Construction of a coal-fired power station which required detailed mapping of two nearby habitat areas over two years, at a cost of EUR 109,000, to access sensitivity to air pollutants, as well as additional costs of EUR 112,000 for collection of soil data.
- Monitoring requirements at a quarry, estimated to have led to additional costs of more than EUR 1m or an additional cost of more than EUR 0.50 per tonne. Quarrying was suspended at this location because of nature protection requirements.
- Estimates by companies that the costs of habitat impact assessments typically fall in the range EUR 0 to 100,000.

Netherlands: While spatial planning is important for the achievement of the Directives' objectives, AA of plans as required in Article 6(3) of the Habitats Directive can be problematic. The level of abstraction of the plans and the period in which they remain in effect (10 years) makes it difficult to assess beyond reasonable scientific doubt that the integrity of the site will not be adversely affected. In accordance with case law, the potential effects of each theoretically possible development that could arise from the plan must be taken into account and assessed as if it were a 'project'. This is despite the fact that, in the future, every project must be assessed before being implemented, as stipulated by the requirements of Article 6(3) to prevent potential adverse effects in the Natura 2000 sites. The fact that activities are assessed twice, at the level of both plan and project causes administrative burden.

UK: DEFRA argues that uncertain or weak data has the potential to lead to extra surveys being required and a more precautionary approach being taken towards licence decisions and conditions, as well as mitigation measures, which can lead to increased costs and delays for developers. Improving the evidence base and making the data easier to access has the potential to deliver significant improvements by reducing uncertainty in the systems and administrative and opportunity costs for developers. It also enables regulators to make more evidence-based decisions, reducing precaution while ensuring that the environmental objectives of the Directives are maintained. Many of these issues have now been addressed, for example through the creation of a Major Infrastructure and Environment Unit.

Source: Evidence gathering questionnaires submitted by BGI (Federation of German Industry), Ministry of Economic Affairs (Netherlands), DEFRA (UK).

Efficient implementation also depends on sufficient capacity in the administrative authorities to determine applications for permits. Where capacity is lacking, this can cause delays and have knock-on effects for the requirements imposed on businesses.

Box 73 Burdens caused by capacity constraints

Croatia: Association BIOM argues that while the total administrative costs for executing AA studies are considerable, a significant proportion of these costs is caused by capacity constraints in the competent authorities. The Directorate for Nature Protection, part of the Ministry of Environment, increased its staff by only one between 2007 and 2012, from 34 to 35 employees, while at the same time introducing the AA procedure. All plans/projects potentially affecting Natura 2000 sites have to be screened by the State Institute for Nature Protection (SINP) in stage one (screening phase) within a time frame of 30 days. Due to lack of baseline data about target species and habitats, SINP often takes a precautionary approach, requiring a full AA procedure. This creates a 'bottleneck' in the EIA system, slowing down the development process, especially since 37% of Croatia's territory comprises designated Natura 2000 sites. NGOs in Croatia have frequently challenged the legality of inadequate AA, inevitably leading to delays and associated costs. A major part of this problem is inadequate strategic planning, often with very little input from stakeholders, as well as a failure to undertake SEAs.

Source: Evidence gathering questionnaire submitted by Association BIOM.

6.7.3.7 Administrative burdens related to infra-structure development

The largest administrative burdens in implementing the Directives often relate to infra-structure projects. However, these costs are usually relatively low compared to the over-all costs of the development. As noted in question Y.5 (see section 6.5), experience has enabled the development of cost-effective approaches to implementation, achieving cost savings over time.

Box 74 Examples of the administrative burdens of infrastructure development

Hungary: The Ministry of Agriculture argues that the overall burden related to infrastructure projects has not been excessive, but notes that the greatest burdens have fallen on the transport sector. One project, a highway M8 between Dunavecse and Szolnok which would cross a Natura 2000 site as well as affecting another national nature reserve, was blocked. Other projects have been able to proceed with adjustments to planned routes or other modifications. Overall, additional costs resulting from the Directives are estimated at 1-3% of the budget. However, future proposals such as M0 West, M2 Vác-frontier, and M3 Vásárosnamény-frontier may present greater challenges.

Belgium: Voka notes that it took more than 15 years – with much effort, time and dialogue - to develop a strategic planning system in the Port of Antwerp, to allow industrial development and nature to co-exist.

UK: The Department of Energy and Climate Change argues that the costs of energy infrastructure projects are usually proportionate to the size of the project and the level of environmental risk. However, in some situations a lack of evidence can cause delays and significantly increase costs, particularly where this results in a precautionary approach. Significant uncertainty may cause a developer to invest considerable time and money in collecting evidence and still be unable to demonstrate an absence of adverse effects, risking the project's feasibility and jeopardising wider energy policy objectives. Most of the costs incurred by developers relate to data collection (e.g. bird survey work) and professional analysis. These costs vary according to the project and the features protected by the Natura 2000 site. Costs are often higher for marine projects, given the difficulties of data collection in the marine environment and the highly mobile nature of some marine species. The consent costs (resulting from the Nature Directives and other laws) of developing one offshore wind farm were estimated by the Crown Estate (undated) at approximately 4% of capital costs. For a new nuclear project, EDF Energy has estimated the cost of carrying out the monitoring, modelling and analysis needed to inform a Habitats Regulation Assessment at approximately GBP 4-5m (EUR 5.2-7m) per project.

Source: Evidence gathering questionnaires submitted by Ministry of Agriculture (Hungary), Voka (Flanders Chamber of Commerce and Industry), Department of Energy and Climate Change (DECC, UK).

Some infrastructure developers have argued that better implementation of the Directives will facilitate infrastructure development and reduce administrative burdens. For example, in an open letter to the President of the European Commission, the Renewables Grid Initiative (RGI) (2014) urged that the environmental protection measures provided by the existing Habitats and Birds Directives not be diminished but, rather, that harmonised implementation of the Directives at national level would streamline procedures to properly develop electricity grids throughout Europe. RGI argued that sound and clear legislation for nature and climate protection is essential for timely deployment, access to capital markets and public support, and that any change that creates uncertainty and delays is likely to prove counter-productive for Europe's energy transition and the related grid development.

Box 75 Administrative burdens of infrastructure development in Germany

The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety notes that the Directives impose costs in the planning of infrastructure projects, including screening and, if necessary, impact assessments, such as surveys and species protection measures. Some of these costs would arise from national planning regulations or other EU rules (e.g. EIA). Legal reviews and uncertainties add to administrative burdens, while planning processes are becoming more complex, lengthy and burdensome in the face of increasing public interest and calls for transparency and participation.

Overall, conservation costs are estimated to account for approximately 2-5% of the overall costs of infrastructure development. Between 2002 and 2007, in the whole of Germany, only four infrastructure projects with federal level involvement required conservation measures with costs of more than EUR 500,000 or 5% of the investment. These were:

- B194 Bypass Loitz in Mecklenburg-Vorpommern: Lesser Spotted Eagle.
- B 8 Bypass Biebelried in Bavaria: Hamster.
- B 11 Regen – Schweinhütt (three strip expansion) in Bavaria: Otter.
- B 533 Bypass Schwarzach in Bavaria: White Stork, Meadow breeding birds.

Safeguards were required to ensure the legal protection of these European protected species, without which the projects would not have been approved.

NABU cites an example of the Werra-Querung road development in Thuringia, where costs and time could have been saved if the Nature Directives had been taken into account at an earlier stage. The planning process ignored advice and representations from nature protection NGOs and authorities, as well as the legal requirements of the Directives, with the planning authorities subsequently dropping their proposals in 2015 because of concerns about the impact on designated sites, and resorting to a compromise proposed by opponents of the development as long ago as 1994. NABU argues that proper respect and implementation of the legal framework and cooperation with nature protection authorities from the start, would have been much more efficient.

Sources: Evidence gathering questionnaires submitted by Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, NABU; Deutscher Bundestag (2007) http://dipbt.bundestag.de/doc/btd/16/076/1607608.pdf; Answer to a parliamentary request of an MP (Deutscher Bundestag) of 18. Dec. 2007.

6.7.3.8 EU reporting obligations

Some nature protection authorities responded that the requirements for reporting to the Commission under the Directives cause unnecessary burden. The monitoring and reporting requirements of EU legislation are currently the subject of a separate Fitness Check.

Box 76 Administrative burdens caused by European reporting requirements

Bulgaria: The Ministry of Environment and Water argues that the requirement for annual reporting under Article 9 of the Birds Directive presents an unnecessary administrative burden. No clear added value is provided from reporting each year instead of every two years as required under Article 16 of the Habitats Directive. The burden on Member State administration could be significantly reduced if the reporting requirements were equal for both Directives and required in alternate years.

Czech Republic: The Ministry of the Environment argued that reporting of all issued derogations is unnecessary to meet the objectives of the Directives, and that only derogation which could have impacts on species conservation status should be reported, e.g. derogations concerning bird killing, taking birds from nature permanently, or disturbing birds in a way that would have negative effect on population, destruction of breeding sites and resting places.

ECNC reports a lack of coordination between different EU directives in terms of reporting. Although similar, slightly different data have to be reported under different obligations, notably the WFD and the MSFD. The combined weight of these often-overlapping reporting obligations causes increased administrative burdens. There are likely to be clear benefits from practical steps that would increase synergies and minimise administrative burdens. The critical question in gathering reporting data is identifying the information that can inform and improve management practices so as to ensure progress towards the Nature Directives' objectives and the EU 2020 Biodiversity Strategy targets. Practical steps include measures to streamline reporting requirements, improve the consistency and interpretation of data gathered, and steps to improve the sharing of data to generate a better understanding of the impacts of conservation measures taken.

Source: Evidence gathering questionnaires submitted by Ministry of Environment and Water (Bulgaria), Ministry of the Environment (Czech Republic), ECNC.

6.7.3.9 Results from the online public consultation

Q21 of the online public consultation asked about the significance of the costs associated with the Directives, including administrative costs. This question appeared in Part II of the online public consultation, in which responses were influenced by campaigning against the Directives, with a majority of respondents emphasising their costs. 60% of respondents considered administrative costs to be major costs, a higher proportion than for other cost categories (Natura 2000 site management costs, costs of protecting species of birds, costs of protecting species other than birds, opportunity costs). Q22 indicated that a higher proportion (62%) considered administrative costs to be disproportionate, given their benefits, compared to the other cost categories.

Responses to Q23 indicated that national implementation of the Directives was considered to be the greatest cause of inefficiency, with 70% crediting it with causing inefficiency to a large extent. This was followed by regional implementation (67%), local implementation (64%) and EU level enforcement (57%).

6.7.4 Key findings

Evidence from national and EU studies and stakeholder responses to the evidence gathering questionnaire suggests that implementation of the Directives gives rise to significant administrative burdens for business and Member State authorities. However, the limited quantitative estimates from EU and national studies indicate that these burdens are small compared to the overall administrative burdens of legislation and relative to the benefits of the Directives. A large proportion of these burdens are necessary to meet the objectives of the Directives. Businesses and environmental groups responding to the evidence gathering questionnaire express differing views about the extent of unnecessary burdens, but often agree that they are caused by problems in implementation rather than the Directives themselves:

- Implementation of the Directives gives rise to administrative burdens, which, in some cases, are significant for the individuals and organisations concerned. These include direct financial costs (e.g. costs of surveys, monitoring, legal and professional fees), the costs of time incurred in permitting and compliance, and delays and uncertainties which affect development activities.
- EU studies indicate that environmental legislation accounts for less than 1% of the overall administrative burden on business in the EU, that one-third of administrative burdens are caused by inefficient public and private administrative practices, and that perceived burdens are higher than actual ones.
- The only available quantitative estimate of administrative burdens resulting from the Directives was made in the Netherlands. Here, the annual costs of administrative burdens to business arising from the Dutch laws that implement the Birds and Habitats Directives were estimated at EUR 39m in 2014. The costs to the authorities were estimated at an additional EUR 10m.
- As meeting the objectives of the Directives (as defined in the intervention logic model in section 2.3) requires the collation and transfer of a large amount of information, it necessarily imposes administrative burdens on businesses and authorities required to comply with their provisions.
- Stakeholders are divided as to the extent to which the current scale of administrative burdens is necessary to achieve the objectives of the Directives. Responses to the evidence gathering questionnaire, particularly from businesses and their representatives across a range of industries, cite examples of excessive burdens on business, while some representatives of Member State authorities point to the burdens associated with reporting to the Commission. On the other hand, stakeholders across all groups note that such burdens are often the result of national or regional implementation rather than the Directives themselves.
- Overall, 40% of respondents to the evidence gathering questionnaire stated that the Directives give rise to unnecessary burdens, with 43% arguing that they do not. The most frequently mentioned types of burdens considered to be excessive or unnecessary included delays and the costs of commissioning surveys.
- Unnecessary causes of administrative burdens were most frequently identified as: inefficient methods of implementation of the Directives at national/regional/local level; complex and bureaucratic procedures and a lack of flexibility; Article 6(3) procedures; species protection rules; and reporting procedures at EU level. Both industry representatives and NGOs also argued that the Directives provide a clear legal framework and that, in their absence, a loss of legal certainty would be expected to increase administrative burdens.

6.8 Y.8 - Is the knowledge base sufficient and available to allow for efficient implementation?

6.8.1 Interpretation and approach

Knowledge based on adequate and reliable information is essential for the effective and efficient implementation of the Nature Directives (see Section 5.3 for further discussion). This is required in guiding conservation actions, targeting the application of scarce resources, anticipating and avoiding potential adverse impacts, and monitoring and evaluating the effectiveness and efficiency of delivery. The cost-effective use of evidence (e.g. data sharing) also promotes efficient implementation (see Section 6.5 analysis). Implementation efficiency may be compromised where insufficient knowledge causes, for example, suboptimal design of the Natura 2000 network, failures to use lowest cost management or protection actions, or requires businesses and other stakeholders to expend resources in gathering new or duplicate information. An inadequate underlying knowledge base can, therefore, increase administrative burdens (see section 6.7).

As described in Section 2.3 in relation to the intervention logic, the requirement for adequate knowledge to implement the Nature Directives is explicitly recognised and taken into account in the legislation. Article 10 of the Birds Directive encourages Member States to undertake research, especially in those aspects listed in Annex V of the Directive (i.e. identification of endangered species and particularly important sites for migration, population levels of migratory species, the influence of methods of taking on bird populations, methods for preventing bird damage, the effects of pollution and the role of birds).

Similarly Article 11 of the Habitats Directive requires research to be undertaken to support the objectives of the Directives. No list of research topics is referred to, but particular attention should be given to issues relating to Article 4 (the identification of SCIs) and Article 10 (landscape features that increase the coherence of the Natura 2000 network). In addition, surveillance carried out to inform implementation reports of both Directives (formally required by the Habitats Directive under Article 11) will also contribute to knowledge that will aid implementation (e.g. by helping to indicate those measures that are working).

The analysis of this question has primarily focused on the following three judgement criteria:

- Knowledge requirements for effective and efficient delivery are identified.
- There are gaps in available knowledge compared to requirements.
- Identified knowledge gaps constrain the efficient implementation of the Directives.

In addition, the assessment briefly considers the existing barriers to accessing biodiversity knowledge and the steps that are being taken to increase such knowledge and its availability.

6.8.2 Main sources of evidence

No systematic review of knowledge requirements and gaps has previously been undertaken and it is beyond the scope of this study to do so. Some of the studies that have examined the implementation of the Directives have noted both the gain in knowledge that was stimulated by the Directives, and current implementation constraints from knowledge gaps (Kati et al, 2015; Naumann et al, 2011). But such studies only highlighted some of the most important issues, and did not describe their impacts on implementation efficiency.

This review has relied to a large extent on the responses to the evidence gathering questionnaire. In question S.3 (see section 5.3), knowledge gaps were identified by respondents as a key constraint on implementation. In question Y.8 (see section 6.7), the nature authorities provided particularly valuable information on institutional knowledge issues (e.g. relating to site designation, management planning, and Appropriate Assessment (AA)). Many NGOs carried out, or contributed to, much of the surveying/mapping of species and habitats and monitoring of their status, and have been involved in site selection, the setting of conservation objectives and management planning, allowing them to also provide useful indications of knowledge gaps relating to these activities. Other stakeholders, such as land and sea users, hunters, and sports fishers, are involved in, or affected by, implementation activities, such as the establishment of management plans and management measures, and provided a useful perspective on associated knowledge issues.

6.8.3 Analysis of the question according to available evidence

6.8.3.1 What knowledge is required to implement the Directives effectively and efficiently?

It is clear that access to adequate, reliable information is essential for many activities that are required to meet the objectives of the Directives (see Table 24). The table also identifies the data requirements for these activities, drawing on the list of research issues in Annex V of the Birds Directive and Guidance documents relating to the Directives (ETC/BD, 2011a; European Commission, 2001; European Commission, 2007b; European Commission, 2007c; European Commission, 2008a), a review of the support science can provide to decision–making (Louette et al, 2015), and responses to the evidence gathering questionnaire.

Table 24 Key knowledge requirements for implementation of the Birds and Habitats Directives

Actions required to implement objectives of the Directives	Required knowledge, data and other information
Defining Favourable Conservation Status.	Historical range and populations, and minimum requirements (to set favourable reference values), biophysical requirements, species composition and structural attributes of habitats, habitat requirements of species and other ecological requirements (e.g. food resources).
Establishing a coherent Natura 2000 network.	Distribution of species and habitats requiring site designations, important migration sites, condition (e.g. viability) of species populations and habitats within potential sites, required coverage and representation at biogeographical levels; site size and connectivity requirements in relation to their specific habitats and species.
Developing site conservation objectives and management plans, and establishing management measures.	Location of habitats and species; their structure, ecology and functions; their past and current condition and biogeographical importance. Land ownership and uses, and its social/cultural and economic values. Pressures and threats (including pollution), and interactions with current and expected land uses. The effects of conservation management actions and other factors that affect the condition of habitats and species, the means of delivering them, their economic and social impacts, and potential funding sources.

Actions required to implement objectives of the Directives	Required knowledge, data and other information
Undertaking AAs of possible impacts from activities, and planning compensatory measures if required.	Qualifying habitats and species present within impacted Natura 2000 sites, and their location, ecological requirements, baseline condition and conservation objectives. Ecological characteristics and functions of the site and sensitive aspects that affect the sites' integrity. Potential impacts of the activities (including cumulative impacts with others) and likely residual impacts after mitigation. Compensation options, their location, potential impacts on each habitat and species and the network as a whole. Feasibility, reliability and time-scales.
Managing landscape features to improve the coherence of the Natura 2000 network.	Requirements for maintaining and enhancing connectivity to achieve Favourable Conservation Status. The role of existing features, threats posed, conservation options and the need for restoration / creation of new features.
Establishing a general protection system for all birds.	The conservation status of all birds (range and population trends), pressures and threats and options available to address them. Identification of ecological methods to prevent damage by birds.
Ensure hunting / exploitation is compatible with wise use for all birds, and, for Habitats Directive Annex V species, is compatible with maintenance of Favourable Conservation Status	In addition to the requirements for all birds above; mortality rates and timing from hunting / exploitation and impacts on survival and recruitment rates and overall population dynamics (taking into account density dependent effects etc.), impacts of different methods of taking on populations, potential impacts of management measures. Impact on habitats and other species (e.g. from disturbance). Social, economic and cultural impact of the hunting and exploitation, and management measures.
Strict protection of species listed in Annex IV of the Habitats Directive.	Each species' range (ideally fine-scale locational data), population, biology, ecology (e.g. habitat requirements), pressures and threats (particular sensitivities to activities) and overall conservation status. Impact mitigation and compensation options and good practices.
Planning reintroductions.	The species former range, biology and ecology (e.g. habitat requirements) and reasons for its loss. Potential pressures and threats if reintroduced. Potential impacts on other species and habitats, social and economic impact. Appropriate reintroduction practices for the species concerned.
Identifying research gaps.	Review of available knowledge in relation to requirements (e.g. this table).
Securing funding.	Costs of establishing management and restoration measures in Natura 2000 sites and other areas and landscape features to the extent required to achieve their objectives; for incorporation into PAFs and funding bids (e.g. LIFE).
Monitoring the status of habitats and species.	Distribution and population size of habitats and species throughout their range (i.e. NOT just within Natura 2000 sites), viability of species populations and condition of their habitat. Habitat condition in relation to key attributes (e.g. bio-physical requirements, species composition and structural attributes). Threats affecting future prospects.
Reporting on the implementation of the Directives.	Conservation status of habitats and species (as above), main achievements under the Directives (e.g. new

Actions required to implement objectives of the Directives	Required knowledge, data and other information
	approaches, changes in public attitudes, stakeholder cooperation), progress with management plans, measures taken with respect to approvals of plans and projects, ensuring the coherence of the network and reintroductions.

Source: own compilation drawing on references listed in the text above

According to Louette et al (2015), science has an important role to play in the implementation of the Habitats Directive, namely in relation to defining Favourable Conservation Status and developing management measures and cost-effective monitoring. However, as indicted in Table 24, there are, in fact, many more activities that require scientific input. Most obviously, reliable and comprehensive data on the overall distribution and most important locations of EU protected habitats and species are required, in order to identify the sites required to ensure that the Natura 2000 network provides adequate coverage of each habitat and species. The Natura 2000 network also aims to be coherent, and information should also be sought, therefore, on the functional connectivity requirements of EU protected habitats and species within the network, and the degree to which these requirements are met (see section 5.1 for further discussion). The location of EU protected habitats and species should be mapped within each Natura 2000 site to aid management planning and the assessment of possible impacts of developments etc. within the site and, ideally, elsewhere outside the site. Similarly, the location of strictly protected species (i.e. those listed on Annex IV of the Habitats Directive) should also be well-known and mapped, to feed into SEAs and EIAs, thereby avoiding negative impacts early in the planning cycle (see section 5.3).

Scientific information is also essential for assessing the potential impacts of developments and other activities (e.g. hunting) on EU protected habitats and species, as well as an assessment of the potential threats involved. This would allow the identification of appropriate measures to deal with such threats and impact, as well as identifying landscape features of importance to the coherence of the network, and assessing the requirements and feasibility of species reintroductions.

However, the Directives also need to take into account economic, social and cultural values. Therefore, Louette et al, (2015) note that 'although the role of science is prominently stated in the Habitats Directive, a good integration of science and policy is a prerequisite to assure the feasibility of the objectives, and to rapidly attain the desired results.' In order to comply with the Directives, and for simple practical reasons, information is also needed on past, current and potential landownership, land uses and other activities (e.g. recreation, sport fishing, hunting), and their economic and social values. A good understanding of stakeholder views on these activities and nature conservation objectives is also essential.

As recognised in a Commission study (Peters et al, 2015) the knowledge gained should be made widely available through, for example, the development of websites, databases, data portals, and clearing houses. It may also need to be synthesised in scientific papers and books, as well as more practical Guidance documents and outreach materials, or presented through training programmes.

In summary, although no systematic review of knowledge requirements is available, it can be concluded from general nature conservation principles and the intervention logic and objectives of the Directives, that a considerable amount of knowledge is required to effectively and efficiently implement the Directives' measures.

6.8.3.2 How does the knowledge available compare to requirements?

As shown by Popescu et al (2014) and EEA (2011), and discussed under question S.1, (Section 5.1), the Directives stimulated a major increase in research and monitoring activities. Boxes Box 77 and Box 78 below outline some of the research and monitoring activities that were carried out in France and Germany to support the implementation of the Directives. This increase in knowledge gathering was essential for the implementation of many actions, in particular the identification of appropriate sites for inclusion in the Natura 2000 network and for monitoring and reporting on the conservation status of habitats and species. Indeed, the progress that has been made on most objectives is evidence that the knowledge base has been sufficient to enable the achievements so far, although knowledge gaps may have had led to inefficiencies.

Box 77 Case example - knowledge gathering activities supporting the implementation of the Nature Directives in France

Knowledge of habitats and species has been particularly improved by the preparation of management plans (DOCOBs) for Natura 2000 sites, the development of the impact assessment system for Natura 2000 sites, and the reporting on the conservation status of habitats and species of Community interest. Supporting work included:

- Updating the 'natural areas of ecological, fauna and flora interest' (ZNIEFF) and Important Bird Area (IBA) inventories[232].
- Consolidation of knowledge on natural habitats (through 'habitats records') and on birds (through birds records)[233].
- Knowledge acquisition campaigns focusing on habitats and species in marine environments: PACOMM (data collection programme on seabirds and marine mammals in mainland France); CoralFISH (data collection programme on Atlantic reefs); Medseacan and Corsican (data collection programmes on Mediterranean reefs); Cartham (mapping of marine habitats within Natura 2000 sites)[234][235]. These programmes are coordinated by the AAMP, in conjunction with the MNHN, and have a total budget of approximately EUR 12m.

Source: Ministry for Ecology, Sustainable Development and Energy.

Box 78 Case example - knowledge gathering activities supporting the implementation of the Nature Directives in Germany

The knowledge base has been continuously improved in the course of implementation of the Directives, especially in marine-related fields, such that knowledge gaps for species and habitat distribution and their ecology have been reduced. In particular, a nation-wide monitoring system was established (Sachteleben and Behrens, 2010) and a good knowledge base created by means of the administrative arrangement on bird monitoring (e.g., (Wahl et al, 2011), (Sudfeldt et al, 2013). Extensive literature, including manuals, have been developed on suitable management measures for utilisation and maintenance-dependent habitat types and species habitats e.g. (Biewald et al, 2013) , (Ellwanger and Schröder, 2006), (Ellwanger et al, 2010), (Finck et al, 2009). The Federal Government and the Länder (specialised authorities, nature conservation academies, etc.) promote the updating of topical scientific knowledge and its transfer to the practice of nature conservation by organising regular knowledge sharing events.

Data are available in specialised publications and (for frequently used data) online (e.g., the manual on the species listed in the annexes, Habitats Directive reports, Birds Directive reports, information for purposes of preliminary screening (http://ffh-vp-info.de/FFHVP/Page.jsp), management recommendations for the agricultural, forestry, fishery industries (www.ffh-anhang4.bfn.de). Research projects commissioned by the Federal Government also ensure the

[232] http://inpn.mnhn.fr/programme/inventaire-znieff/presentation
[233] http://inpn.mnhn.fr/programme/referentiels-habitats
[234] http://inpn.mnhn.fr/actualites/lire/1121/mise-en-ligne-du-premier-jeu-de-donnees-pacomm-megafaune-marine-observee-lors-des-campagnes-samm-en-france-metropolitaine
[235] http://inpn.mnhn.fr/actualites/lire/4281/contribution-du-programme-cartham-a-l-inpn

availability of better data for planning processes.

Information is also available for administrative implementation. GIS applications show the location and boundaries of protected areas (e.g. www.geodienste.bfn.de/schutzgebiete/) and enable this data to be combined with other specialised data (agricultural measures, biotope mapping, forest areas, etc.; e.g. http://www.geoportal-th.de/). Regulations and management plans are usually fully available online. Sections C.1 and C.2 of PAF (2013) (BMUB and BfN, 2013) are included in Annex 1 to provide an overview.

A sufficient knowledge base exists on the implementation of the sustainable use of species in Annex V of the Habitats Directive, and the requirements for hunting species in Annex II of the Birds Directive, enabling reviews of this type of use as precautionary measures.

Administrative bodies and interested parties not directly linked to nature conservation benefit from this data, for example in planning processes (e.g. spatial planning, other authorities, private and public project operators, etc.).

Source: Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit.

The improvement in knowledge of the status of EU Protected Habitats and Species is also clear from a comparison of the proportion of assessments reported as 'unknown' in the 2001-2006 and 2007-2012 reporting periods, as shown in Table C.26 of the 2015 State of Nature Report (EEA, 2015a). For habitats, the proportion of 'unknown' assessments fell from 14.8% to 5.4%, while for non-bird species, they fell from 28.6% to 14.2%. A similar comparison for birds is not possible as there were no comparative assessments carried out before the 2007-2012 reporting period. The proportion of 'unknown' assessments for birds in the last reporting period was 16%, which is surprising, given that relatively comprehensive bird monitoring is carried out in the EU. However, as explained in the 2015 State of Nature Report, this result is in part due to the more complex methodology for assessing the status of birds. In contrast to reporting under the Habitats Directive, the assessment of the status of birds requires information on both trend direction and trend period.

Kati et al (2015) identified the main factors affecting the implementation of Natura 2000 through a targeted survey of conservation scientists in Europe in 2009 (see section 5.3 for more discussion). The questionnaires asked respondents to score 30 elements of Natura 2000 implementation according to a 5-point Likert scale of satisfaction (e.g. 1= not at all; 5= very much). Respondents gave a satisfaction score of 2.91 for the statement that 'Scientific studies for Natura 2000 sites management are adequate' (Table 13). Although this score is above the mid-point, and might suggest a moderate degree of satisfaction, it is a relatively low score, compared to other elements. The statement that 'There is a sufficient number of conservation scientists who are involved in Natura 2000 decision-making processes' had a lower score of 2.64. These scores appear to indicate that the level of scientific knowledge could be improved, and, in particular, the availability of scientific knowledge could be improved through the increased involvement of conservation scientists in policy-making.

Analysis of the responses to the evidence gathering questionnaire on the sufficiency of the knowledge base revealed mixed opinions (Table 25). 46% did not clearly indicate whether or not they considered the knowledge base to be sufficient. A common response, particularly among the nature conservation NGOs, was that while the knowledge base is sufficient to implement the Directives, the potential for improving the knowledge base still remains. Thus, while they indicated that the knowledge base was sufficient to some degree and was not a major limitation on action, they also seemed to suggest that its implementation could be more effective and efficient if further knowledge was available. In fact, many such responses went on to identify knowledge gaps and weaknesses. This made it difficult to allocate the responses to the categories listed in Table 25, and the percentages should, therefore, be treated as indicative. Nevertheless, some 38% considered the existing knowledge base to be insufficient.

There were clear differences in views between the stakeholder groups, with the NGOs being most satisfied with the knowledge base. Public authorities and the businesses / industry sector were least satisfied with the knowledge base, but it should be noted that the number of respondents from public authorities other than nature authorities, was low.

Table 25 Responses to the evidence gathering questionnaire on whether the knowledge base is sufficient and available to allow for efficient implementation

Respondent's views	All respondents	Nature Protection Authority	Other Public Authority	NGO	Private Enterprise /Industry
Number of relevant responses to the question	82	23	11	32	16
% responses that the knowledge base is sufficient	15.9%	13.0%	0.0%	28.1%	6.3%
% responses that the knowledge base is NOT sufficient	37.8%	56.5%	54.5%	15.6%	43.8%
% responses that did not clearly state whether the knowledge base is sufficient	46.3%	30.4%	45.5%	56.3%	50.0%

Similar results were obtained from the responses to question S.3 in the evidence gathering questionnaire on key factors influencing the implementation of the Directives (Table 23). Some 30% of respondents were considered that knowledge levels had hindered implementation, with 3% considering that knowledge levels had supported it, and 7% noting mixed impacts.

Further evidence that the knowledge base is insufficient comes from Q19 of the online public consultation questionnaire, which asked about the factors limiting progress towards the Directives' objectives. 61% of the respondents stated that 'Gaps in scientific knowledge of species and habitats' were 'Significantly restricting progress', 25% thought they were 'Somewhat restricting progress' and 11% considered that they were 'Not restricting progress'. As discussed in Section 4, care needs to be taken with the interpretation of these results, as they were highly influenced by campaigns. Q19 was particularly influenced by campaigns by organisations that are generally not supportive of the Directives, suggesting that the view that further knowledge is required to implement the Directives goes beyond NGO and nature authorities, although the reasoning behind such views may differ between the stakeholder groups.

In conclusion, it is clear that the Directives have stimulated a significant increase in the research and monitoring activities essential for the implementation of many measures, in particular the identification of appropriate sites for inclusion in the Natura 2000 network. However, the studies and consultation responses described above provide mutually reinforcing evidence and opinion that knowledge gaps are affecting the effective and efficient implementation of the Directives to some extent in most, if not all, Member States.

6.8.3.3 What are the key knowledge gaps and their impacts on the implementation of the Directives?

There are no detailed EU level assessments of those aspects of the existing knowledge base which are sufficient for efficient implementation of the Directives (other than the 2015 State of Nature Report quantification of monitoring coverage and quality). There-

fore, this evaluation study has primarily drawn on the responses to the evidence gathering questionnaire to identify the most important knowledge gaps and deficiencies. From an examination of the responses it was possible to identify a number of recurring knowledge-related issues that have influenced the implementation of the Directives. Although many of these interact and are difficult to separate, the most frequently mentioned are listed in Table 26. The results suggest that there are four knowledge gaps of particular importance (identified by 17% to 24% of respondents), and these are described in further detail below. Four others were identified by less than 5% of respondents. Other distinguishable knowledge gaps that were mentioned by single respondents related to financial expenditure, biological aspects of marine habitats (e.g. their characteristic species), the implementation of the provisions of the Directives (e.g. AAs carried out, financing, legal issues and compensation measures taken), and opportunity costs.

Table 26 Knowledge gaps identified by respondents to the evidence gathering questionnaire and the percentage identifying each as a constraint on the implementation of the Directives

Knowledge gaps relating to:	All respondents	Nature Protection Authority	Other Public Authority	NGO	Private Enterprise/Industry
Number of relevant responses to the question	82	23	11	32	16
The location of EU protected habitats & species	24.4%	39.1%	27.3%	9.4%	31.3%
The ecological requirements of species & habitat maintenance & restoration requirements	20.7%	39.1%	36.4%	12.5%	0.0%
Habitat & species: range and population trends (historic and current) / conservation status	19.5%	30.4%	0.0%	25.0%	6.3%
The potential impacts of activities on habitats and species	17.1%	26.1%	27.3%	12.5%	6.3%
Climate change	4.9%	4.3%	9.1%	6.3%	0.0%
Natura 2000 Network adequacy & coherence	3.7%	4.3%	0.0%	6.3%	0.0%
Ecosystem functions & services	3.7%	8.7%	0.0%	0.0%	6.3%
Monitoring of pressures on habitats & species	2.4%	0.0%	0.0%	6.3%	0.0%

6.8.3.3.1 The location of EU protected habitats and species

The most frequently mentioned knowledge gaps relate to the distribution and precise location of EU protected habitats and species. This is of particular importance because it has a bearing on both pillars of action under the Directives: the protection of sites and the protection of species. Although few respondents explicitly stated that knowledge gaps had affected the identification of sites for inclusion within the Natura 2000 network, some did note that the distribution of some marine habitats and species, and some terrestrial invertebrate species, remains poorly known. For example, the French National Committee for Marine Fisheries and Sea Farming noted that better knowledge is required of the geographical location of the habitats and species of Community interest. According to the Committee, the designation of Natura 2000 marine sites was mostly performed in 2008, when data were fragmented and incomplete in many cases. More extensive data were

collected later, making it necessary to modify the perimeters of the sites and resulting in significant new administrative burdens, including the need for additional mandatory consultations.

The National Trust for Ireland (An Taisce) believes that data are lacking on offshore marine SPAs (and other MPAs), suggesting that, as a result, there have been no attempts to identify offshore marine SPAs to date. Resolving this, they feel, should be a priority, as the offshore marine SPAs should form part of a wider network of MPAs, affording better protection for key foraging/roosting areas for seabirds and diving ducks at sea and also, for example, nursery and breeding areas for key prey species.

According to the Ministry of Reconstruction of Production, Environment and Energy in Greece, knowledge gaps mainly exist with respect to the marine environment (especially maps of marine habitat types throughout the country, as well as monitoring of marine mammals), the gaps in the maps of terrestrial ecosystems (the most recent Corine Land Cover data are from 2000) and the limited information on some species groups, such as invertebrates. However, they note that, with support from the EU, some of these gaps have been addressed through three LIFE-Nature projects that have investigated coastal habitats and the marine environment of the Aegean and Ionian Seas, as well as seabird species[236].

Many of the stakeholder responses implied that a more frequent knowledge gap relates to the protection of species outside Natura 2000 sites, particularly species listed on Annex IV of the Habitats Directive. For example, the Danish nature authority notes that knowledge on the distribution and local occurrence of some species is scarce and limited (e.g. amphibians). This is partly because some species are very difficult to detect and survey (e.g. bats or Common Dormouse). The Latvian Fund for Nature NGO states that 'the main monitoring information gaps are distribution, quality and dynamics of habitats outside the Natura 2000 network, distribution, numbers and population changes of amphibians and reptiles, most groups of invertebrates and plants, especially outside Natura 2000.' In the UK, DEFRA, DECC and the nature NGOs all note that while knowledge is improving, location information for some protected species, such as some bats, cetaceans, seabirds at sea and Great Crested Newts, remains inadequate.

The gaps in information on the location of EU protected habitats and species have resulted in a range of impacts on the implementation of the Directives, most obviously, the slow progress of the development of the Natura 2000 network, particularly in the marine environment. They have also led to implementation problems that exacerbate some costs and burdens (see sections 6.1 and 6.4 for more details). Uncertainty about whether or not the Natura 2000 network is complete, and if its boundaries may change, can dissuade businesses from investing in certain areas. Late identification of Natura 2000 sites can lead, in some instances, to developers finding that sites they have acquired since the main period of Natura designation have become Natura 2000 sites and they are, thus, unable to carry out their envisaged activities as planned.

Inadequate knowledge of the presence and location of EU protected habitats and species within Natura 2000 sites can also cause problems for nature authorities and developers. Such data gaps hinder the development of site management objectives and plans, and, in turn, management agreements with landowners. It also makes it difficult for developers to identify and avoid potential biodiversity impacts early in their planning, and for authorities to carry out screening of proposed activities with respect to the need for AAs. In their review of the implementation of Article 6(3) procedures, Sundseth and Roth (2013) noted that knowledge gaps were often a cause of problems. The procedures are facilitated where impacts are considered early in the planning stage, but this requires widespread, reliable and compatible data, which normally result from strategic data gathering initiatives.

Euromines also states that reliable certified information on Natura 2000 sites is often inadequate or unavailable from the competent authorities, resulting in project proponents collecting information themselves, 'which results in extra costs for the project proponent

[236] LIFE07 NAT/GR/000285, LIFE03 NAT/GR/000091, LIFE96 NAT/GR/003221.

but also leads to unnecessarily costly and time consuming authorisation procedures'. The European Landowners organisation makes a similar point, noting that the inadequacy of knowledge frequently leads to problems for small developers, who are obliged to fund data gathering for AAs. ESPO suggest that the burden of collecting information could be more efficiently dealt with collectively, rather than each project proponent having to gather their own information. This been recognised in the Netherlands; the Ministry of Infrastructure and Environment is implementing the 'pathway for the environment' initiative which is developing an integrated online environmental data platform for all national government departments and regional authorities by 2024 (Ministerie van Infrastructuur en Milieu, 2014).

There have been cases where developers have purchased or obtained a development licence for an area outside the Natura 2000 network and then found during surveys for required EIAs that the site is of high biodiversity importance and merits designation as a Natura 2000 site, or can only be developed with restrictions on certain activities. For example, in the UK this situation has affected a number of strategic development areas at sea (e.g. offshore wind development zones and oil and gas licensing rounds). Although these are subject to SEAs, they have been based on inadequate information, in particular on mobile species. This has resulted in some proposed offshore wind farms in the UK being delayed or cancelled as a result of improved knowledge of the biodiversity of the area, e.g. Phase II of the London Array (see Box 79).

According to the UK NGOs, they have long called for a Government-led, national integrated marine survey programme to harness the efforts of Government, developers and others to identify and address knowledge gaps. They noted that while costs of surveys at sea are significant, much could be achieved in terms of economies of scale through better coordination and redistribution of existing effort and investment, and improved access to the data that already exists. They also stated that 'reduced uncertainty and investor risk associated with the clarity that designation of a coherent Natura 2000 network at sea would provide could also deliver significant benefits for Government and industry.'

Box 79 The effect of biodiversity knowledge gaps on the London Array offshore wind development

The London Array Wind Farm, located between the Kent and Essex coasts, 20km offshore between two sandbanks, Long Sand and Knock Deep in the Outer Thames Estuary, was one of 15 companies granted a licence by The Crown Estate in its second round for offshore wind farm development. It was originally planned to consist of 341 turbines of 1GW capacity. However, surveys identified up to 6,500 wintering Red-throated Diver in the north-east area of the licensed area, the most important such habitat in English waters (and in excess of the total available estimate of the wintering population of the species at that time).

Inadequate marine surveying prior to licensing meant that this major concentration of wintering birds had not been identified, nor the area designated a SPA in a timely manner. Although it had been subject to SEA, the available data to populate it was so weak as to render the exercise almost meaningless. Thus the site licensed included a significant area of high ecological value which was only subsequently revealed by developer-led surveys.

Negotiations between the developer and (then) English Nature and the Royal Society for the Protection of Birds (RSPB), led to the site being considered as though it were a SPA, given its high interest. The scheme was reduced to two-thirds its original planned size, and implementation took place in two phases, ensuring no adverse effect on the integrity of the SPA.

Source: UK Wildlife Link stakeholder questionnaire response.

Many stakeholders note that the lack of comprehensive knowledge of the location of species - especially Annex IV species - causes widespread problems with proposed developments outside the Natura 2000 network, resulting in high costs for developers in surveys and mitigation measures (see section 6.4, Box 36, Box 38) and in some cases permitting delays and refusals. The Danish nature stated that the lack of knowledge on widespread species such as the Great Crested Newt and Moor Frog hinders the implementation of the

species protection provisions of the Habitats Directive. DEFRA in the UK made a similar observation regarding the Great Crested Newt.

In conclusion, there is evidence from several sources that better knowledge of the location of EU protected habitats and species would help to complete the Natura 2000 network efficiently, and reduce uncertainty about the need for further designations and their potential impacts on developments and other human activities. Better knowledge of the location of EU protected species (especially those listed in Annex IV of the Habitats Directive), would facilitate consideration of potential impacts in the early stages of development planning (i.e. in SEAs and spatial plans), when it is easier for developers to avoid impacts and their associated costs. Initiatives, such as the Somerset County Council protected species GIS, that are considered to assist with this are described in question S.3 (see section 5.3) and question Y.5 (see section 6.5).

6.8.3.4 The ecological requirements of species and habitat maintenance and restoration requirements

Approximately 21% of respondents indicated that the implementation of the Directives has been affected by gaps in the knowledge of the ecological requirements of habitats and species, even though existing research findings could apply to many Member States for some habitats and species. This view was particularly prevalent amongst the nature authorities, including those in Spain, Hungary, the Netherlands, Sweden and Slovenia. In Slovenia, the Ministry of Environment and State Planning highlighted key gaps, including knowledge of the ecological requirements of a range of species and habitats (e.g. some mosses, fish, birds, butterflies and mollusc species, marine species that range over wide areas, and some forests habitats). It also difficult to find appropriate solutions for management of some individual species, especially where they require harmonisation with agricultural practices and species protection (e.g. means of assuring the maintenance of mosaic landscapes).

Such knowledge gaps can be expected to constrain the development of detailed and well-tailored management plans. This, in turn, impacts on the provision of Natura 2000 compensation funds or the establishment of agri-environment measures, etc. Information on the ecological requirements of species and habitats is also needed for AAs and decisions relating to hunting/exploitation of species, and activities that may impact on strictly protected species. Although evidence of the impacts of knowledge gaps is lacking, the Ministry of Environment and Nature Protection in Croatia noted that information on the ecological requirements of species is insufficient to support the selection of conservation measures and AAs, the latter creating additional data gathering demands on developers. However, such data gaps have been recognised and are now being addressed, e.g. through a Natura Integration Project and under the Competiveness and Cohesion Operational Programme.

6.8.3.5 Habitat & species: range and population trends (historic and current) / conservation status

While there have been considerable improvements in the monitoring of habitats and species, a significant proportion of assessments of conservation status were uncertain in the 2007-2012 reporting period. In addition, relatively few data stem from well-designed monitoring programmes, as only 17% of habitat area and species population size assessments for 2007-2012 were based on complete surveys or statistically robust estimates from sampling schemes (EEA, 2015a). Also, the data used to assess conservation status should have been collected during the reporting period using standardised methods consistently across all Member States. However, in reality, Member States have used

data collected for diverse purposes and over varying time periods, and in many cases assessments rely on expert opinion rather than suitable data. Some of the key factors that limited the accuracy of the conservation status assessments are summarised in Box 80.

Box 80 Issues affecting the quality and completeness of data used to assess the conservation status of habitats and species in the 2007-2012 reporting period

- *Absence of data from Greece*: Greece did not report until 2015, and therefore its data were not taken into account in the 2015 State of Nature Report. This is a significant gap because Greece contains a substantial proportion of the biodiversity protected by the Habitats Directive. Although the EU biogeographical region assessments used the data reported for Greece for 2001-2006, they were out of date, based only on data from Natura 2000 sites rather than from the whole of Greece, and likely to be an over-optimistic assessment of the conservation status for that period.
- *Variations between countries and regions:* An indeterminate proportion of the differences between Member States reporting is due to differing approaches and methodologies. These include different methods for determining favourable reference values (McConville and Tucker, 2015) and different methods to measure or evaluate population size or species habitat area. However, this problem has been recognised by the European Commission, who initiated a 2-year project in 2015 to study this issue. Annex I habitat interpretation and mapping methodologies also differ between Member States. For example, Germany reported a substantially higher density of habitat 3150 'Natural eutrophic lakes with Magnopotamion or Hydrocharition type vegetation' than Poland, despite having similar geographies. Many Member States reported species population size using units that did not correspond to the agreed format, making it impossible to provide EU population sizes for most species.
- *Missing and 'poor' data:* The majority of Member States used partial data with some extrapolation and/or modelling to estimate Annex I habitat area (64%) and species population size (47%). Estimates based on expert opinion with little or no sampling were used for 12% of habitat area assessments and 25% of species population assessments. In Romania and France, the reported total area of terrestrial Annex I habitats was larger than the total land area, indicating that some of the habitat areas were over-estimates.

Source: State of Nature in the EU, EEA 2015.

Hochkirk et al (2013a) described issues with the implementation of the Directives as identified by 14 German university academics. Among other things, they state that there is a need to improve the on-ground monitoring as it is crucial for adapting management plans, as well as assessing the status of species. However, at the time, the authors considered the monitoring to lack standardisation across countries, taxon-specific standards and coherent training of monitoring staff.

In addition to knowing the current distribution of habitats and the range and population size of species, there is also an important need to know their past distributions, ranges and populations. This is because a key requirement for the assessment of Favourable Conservation Status (see section 2.3.1) for habitats and species is the establishment of comparative favourable reference values. These reference values were not defined in the Directives but were agreed through discussions with the Scientific Working Group (Habitats), the Habitats Committee and workshops with Member States (ETC/BD, 2011a). As noted by Louette et al (2015), determining reference values is not easy, as they should be based on scientific knowledge on the ecology and genetics of biota, using theoretical, demographical or (meta) population genetic models. In many cases however, these data are deficient, or models result in values that are no longer realistic in the human impacted landscapes of Europe. Therefore, in practice, many Member States have not yet defined these reference values, nor have they defined Favourable Conservation Status at national or biogeographical levels. In some cases, where reference values have been defined they have often been based on judgement and simple assumptions rather than robust scientific evidence (McConville and Tucker, 2015).

The absence of favourable reference values and other defined standards (e.g. habitat quality) against which to assess Favourable Conservation Status make it difficult to set meaningful conservation objectives for Natura 2000 sites and to assess potential impacts of activities on them, as well as on strictly protected species, thereby affecting decision-making on these issues. UK Wildlife Link stated that in the absence of defined Favourable Conservation Status standards it is not possible to assess the significance of potential impacts, and therefore a precautionary approach must be adopted that is based on a goal of no net loss. Similar views are expressed by Sundseth and Roth (2013) in their review of Article 6(3) procedures, as well as by DEFRA in their response to the evidence gathering questionnaire. Evidence of the impact of the lack of Favourable Conservation Status standards is demonstrated by the approach to the conservation of Great Crested Newts in the UK, where mitigation and compensation is required for development impacts on every individual newt (Simpson, 2015), resulting in very high costs in some cases (see Box 36 for details). However initiatives are now addressing the knowledge gaps underlying this problem, taking a strategic rather than site-based approach to defining impacts on conservation status (Simpson, 2015) (see section 5.3).

6.8.3.6 The potential impacts of activities on habitats and species

About 17% of respondents indicated that there were gaps in knowledge relating to the impact of human activities on EU protected species and habitats. Although this may affect the development of management plans to some extent, stakeholder responses primarily referred to it in the context of assessing impacts as part of AAs and permitting activities that may affect strictly protected species. Several stakeholders noted that the knowledge gaps make it difficult to rule out the possibility of significant effects as required under Article 6(3) of the Habitats Directive. Therefore, to ensure compliance with the precautionary principle, authorities are taking risk-averse approaches to development applications, resulting in potentially acceptable developments being rejected, or high burdens being placed on developers to collect sufficient information to reliably establish an absence of adverse effects (e.g. see Box 40).

For example, the NWPS in Ireland highlighted the need for research to understand the effects of developing technologies, as current knowledge gaps lead to increased burdens on individual project proponents. They also considered the systems to analyse cumulative effects to be inadequate. Similar views were expressed by the Ministry of Economic Affairs in the Netherlands, for example in relation to the possible impact of wind turbines on birds and bats, and disturbance resulting from recreation.

Many knowledge gaps exist with respect to marine habitats and species, and these, in turn, constrain impact assessments in the marine environment. For example, the French National Committee for Marine Fisheries and Sea Farming noted that better scientific knowledge of the marine environment is required, including the functioning of ecosystems and the impacts of pressures and management measures on the conservation status of habitats and species, and their sensitivity and recoverability.

The Department for Energy and Climate Change (DECC) in the UK, highlighted that evidence gaps relating to the ecological requirements, distribution, and sensitivity of Annex I and Annex II species has presented (and will continue to present) a significant challenge for developers and for UK decision makers. The sensitivity of mobile species (cetaceans and sea birds) and the presence/absence of ephemeral habitats (e.g. Sabellaria spinulosa reefs) have caused difficulties in the past and increased costs/caused additional burdens for developers. They also referred to particular problems relating to the assessment of offshore wind turbine collision risks and their impacts on seabird populations. Data shortcomings have resulted in the use of models in impact assessments that may be too precautionary in terms of their assumptions, as well as high costs and uncertainty for developers. A 'Coping strategy' was produced by DECC, developers, NGOs and statutory nature conservation bodies to manage and reduce these risks until such a time as further evidence is available. According to DECC, 'whilst this resulted in some short-term

some successes, the key issue remains of how best to source robust and cost-effective evidence, taking into account the precautionary principle and wider policy requirements (such as increasing sources of renewable energy and combatting climate change).'

Similar data deficiency problems are affecting the assessment and mitigation of impacts of wind farms on bats (Camina, 2012; Eurobats, 2010; Georgiakakis et al, 2012; Minderman et al, 2015; Peste et al, 2015; Santos et al, 2013; Voigt et al, 2015).

Some important knowledge deficiencies relating to the impacts of human activities are not connected to specific projects, but, rather, to wider human activities. For example, in some areas further information is required to reliably assess and quantify the influence of nitrogen deposition on the Natura 2000 network (Hicks et al, 2011; LANUV NRW, 2013; Whitfield and McIntosh, 2014).

Although not specifically mentioned by any respondents, some scientific papers have noted gaps in knowledge of the genetic viability of species with greatly reduced and fragmented distributions and/or range (Traill et al, 2010), and a lack of attention to genetic status as a component of species conservation status (Laikre et al, 2009). This may be a greater threat than is realised, as indicated by research findings showing a strong decline in gene diversity of Cricetus cricetus in Western Europe (La Haye et al, 2012), the finding that the inbred status of Wolf in Scandinavia is affecting population health (Räikkönen et al, 2013), the critically low genetic variability in Eurasian Lynx in the Dinaric mountains (Sindicic et al, 2013), and the potential loss of genetic variability of Iberian endemic Lacerta schreiberi under climate change (Rödder and Schulte, 2010).

6.8.3.7 Steps being taken to improve biodiversity knowledge in the EU that will help to support the implementation of the Directives

Some respondents indicated that there is a large suite of existing biodiversity data, information and knowledge that is currently inaccessible to policy and decision makers, and these gaps could be partially bridged by further standardisation, collation, sharing and processing (e.g. modelling) of this information. In fact, such problems have been recognised by the Commission, and a series of EU research projects financed under the 7th framework programme aim to contribute to improving the EU biodiversity knowledge base, including:

- EU BON is developing tools and data standards, data-sharing specifications and strategies for accommodating large data volumes in order to facilitate access and integration of available biodiversity data in the EU. For example, the Global Biodiversity Information Facility (GBIF) platform is being substantially improved to incorporate monitoring (multiple sample) data, as well as individual occurrence sampling data.
- The EU BON data hub will facilitate use of the database of existing biodiversity monitoring schemes across Europe, developed by the EuMon project.
- The European Biodiversity Observation Network project (EBONE) improves methods and standards for habitat monitoring, including Annex I habitats.
- The Biodiversity Virtual e-laboratory (BioVeL) supports scientists to carry out research on biodiversity by offering computerised tools ('workflows') to process large amounts of data from their own and cross-disciplinary sources, as well as tools for designing and running workflows.

Technological developments are also being used to help to improve the efficiency of biodiversity surveying and monitoring, such as:

- Development of a feasible method for heathland habitat status reporting using remote sensing data (Hufkens et al, 2010), including the estimation of fine-scale elements that are too small to be derived directly (Spanhove et al, 2012).
- Use of high-resolution full-waveform LIDAR data to detect grassland vegetation classes relevant for Natura 2000 (Zlinkszky et al, 2014).
- A new survey that tests pond water for traces of Great Crested Newt DNA has been shown to be an effective and relatively cheap survey method (costing about one-fifth of the traditional survey).

6.8.3.8 Barriers to use of available scientific knowledge in conservation management

- Once the required knowledge is gained, it must then be disseminated appropriately to a wide range of actors in order to aid implementation of the Nature Directives. It is apparent, however, from some studies (e.g. Peters et al, 2015), and responses to the evidence gathering questionnaire, that the best available data and knowledge are not always used in the implementation of the Directives. For example, a study demonstrated that only 40% of published new protected species records were taken into account by the nature conservation authorities in updating species lists of Natura 2000 sites across the EU (Opermanis et al, 2014). Reasons included a reliance on other sources of information by authorities and the difficulty in finding relevant information in scientific papers, which are published in a wide range of journals and often lack sufficient detail.
- Another study compared published conservation recommendations in the literature with implementation in a group of Natura 2000 sites straddling the Greek-Bulgarian border. It found that 74% of the published recommendations were familiar to consulted experts, but only 52% (in the Greek part) and 16% (in the Bulgarian part) of the recommendations were implemented, and only 15% (Greek) and 3.1% (Bulgarian) were implemented and evaluated for their effectiveness (Schindler et al, 2011). Researchers and conservation managers on both sides of the Greek-Bulgarian border faced similar implementation problems, often due to the lack of political will for nature conservation and low capacities of competent authorities.
- Energy UK also noted that there is a need for better guidance for regulators and statutory consultees to ensure the provision of consistent and constructive advice, particularly in terms of requesting information and specifying conditions and mitigation focused on, and proportionate to, the potential impact on the sites.
- Steps are increasingly being taken to make biodiversity data more available and to facilitate knowledge transfer through EU and Member State initiatives. The development of the internet has made this relatively easy, with many such initiatives on the websites of national nature/environment authorities, related organisations and data portals. Other initiatives include:
- DG Environment webpages relating to Nature and Biodiversity[237].
- Biodiversity Information System for Europe (BISE)[238].
- The Biodiversity Data Centre (BDC) of the EEA[239].
- European Environment Information and Observation Network (EIONET)[240].
- Conservation Evidence[241].

[237] http://ec.europa.eu/environment/nature/index_en.htm accessed 17.02.16
[238] http://www.biodiversity.europa.eu/ accessed 17.02.16
[239] http://www.eea.europa.eu/themes/biodiversity/dc accessed 17.02.16
[240] https://www.eionet.europa.eu/

- Society for Ecological Restoration Knowledgebase on Ecological Restoration in Europe[242].

The Commission recently conducted a study (Peters et al, 2015) assessing the availability of online information relating to the Nature Directives and the extent to which spatial data are compliant with the INSPIRE Directive (which aims to ensure that spatial data are usable in an EU and cross-border context). The study provided recommendations on how information could be improved, including through the potential development of a Structured Implementation and Information Framework (SIIF) for the Nature Directives.

The Commission has also been instrumental in identifying knowledge-related problems and addressing these through the development of Guidance documents on the DG Environment website. These and a number of guidance reports produced by Member States are listed in Box 81.

Box 81 Examples of Guidance documents on implementation of the Nature Directives

European Commission guidance:

- Assessing impact of fisheries on marine Natura 2000 (European Commission, 2012d).
- Assessing impacts of aquaculture on Natura 2000 (European Commission, 2012e).
- Assessing impact of wind farms on Natura 2000 (European Commission, 2010b).
- Assessing impacts of non-mineral extraction on Natura 2000 (European Commission, 2010a).
- Assessing impacts of energy transmission infrastructure on Natura 2000 and EU protected species (European Commission, 2014e).

Member States and sectoral guidance:

- Guidance on appropriate assessment and species impact assessment in Austria produced by roads company (ASFiNAG, 2011).
- Guidance on bird sensitivity mapping for wind energy developments by NGO (BirdWatch Ireland, 2015).

6.8.4 Key findings

- No systematic review of knowledge requirements and gaps has been undertaken, although some studies examining implementation of the Directives have noted both the gain in knowledge stimulated by the Directives and the current implementation constraints resulting from knowledge gaps. While such studies highlighted some of the most important issues, they did not describe the impacts on costs and burdens.
- Adequate reliable knowledge is fundamental to many activities associated with implementation, including identifying appropriate sites for inclusion in the Natura 2000 network, defining Favourable Conservation Status, developing site conservation objectives and management plans, identifying funding requirements, working with stakeholders to establish management measures and funding, developing guidance, undertaking AA of possible impacts from activities, permitting, planning reintroductions, identifying research gaps and monitoring activities and their impacts.
- The Directives have stimulated a significant increase in research and monitoring activities, essential for the implementation of many measures, in particular the identification of appropriate sites for inclusion in the Natura 2000 network. However, in most, if not all, Member States, there are significant data and knowledge gaps that constrain efficient (and effective) implementation. The most

[241] http://www.conservationevidence.com/
[242] http://chapter.ser.org/europe/knowledge-base/

significant deficiencies in knowledge that have affected the efficiency of implementation relate to:

- Identification of some offshore marine SPAs for seabirds, SCIs in the marine environment and some SCIs for inadequately surveyed terrestrial species (e.g. various invertebrates).
- Understanding the extent to which the Nature 2000 network adequately conserves species groups that have low representation in the Annexes, and the implications regarding the potential need for adding species to the Annexes.
- Assessing the adequacy of the coherence of the Natura 2000 network in terms of its functional ecological connectivity, such as its ability to support viable meta-populations and enable required inter-site movements (e.g. for migration, feeding and dispersal).
- Assessing the potential impact of climate change on EU protected species and habitats (both within and outside the Natura 2000 network) and the most appropriate intervention measures.
- Understanding historic and current population and range distributions of species and habitats in order to define Favourable Conservation Status at national and biogeographical levels.
- Understanding the ecological requirements of some species and habitats in order to define appropriate management measures.
- Understanding the causes of observed declines in some EU protected species.
- Knowledge of the potential impacts of certain human activities (such as hunting, marine noise, biomass production) on EU protected species and habitats.
- Having sufficient spatial data on the location of EU protected species and habitats to feed into SEA, EIAs and trigger and inform AA.
- Quantifying the values of ecosystem services provided by EU protected habitats and species in Natura 2000 sites and elsewhere.

- Knowledge gaps have sometimes led to implementation problems, contributing to costs and burdens (see also sections questions 6.1 and 6.4) including:
  - Uncertainty about the potential designation of areas as Natura 2000 sites in the future, which can lead to project delays and opportunity costs.
  - Uncertainty about the location of EU protected habitats and species, hindering SEA and spatial planning processes, and making early avoidance of the most significant biodiversity and economic conflicts difficult.
  - The absence of national and biogeographical standards against which to assess Favourable Conservation Status and site conservation objectives makes it difficult to assess the possible impacts of activities, leading to delays and/or risk-averse decision-making.
  - Uncertainty about the possible impacts of activities on EU protected habitats and species, which slows decision-making and increases the use of the precautionary principle.
  - Incomplete knowledge of the ecological requirements and associated management measures of EU protected habitats and species, which constrains the establishment of site management objectives and management plans. This, in turn, impacts on the provision of Natura 2000 compensation funds or the establishment of agri-environment measures, etc.

- Some knowledge gaps are being alleviated by better use of existing data through further standardisation, collation, sharing and processing (e.g. modelling). The benefits of the better use of biodiversity data (beyond the requirements of the Directives) have been recognised and a series of EU research projects financed under the 7th framework programme aim to contribute to improving the EU biodiversity knowledge base. Steps are also being taken to overcome barriers to the uptake of acquired knowledge, such as dissemination via websites and guidance documents.

7 Evaluation and analysis of relevance questions

Relevance concerns the extent to which the objectives of the Nature Directives are consistent with the needs of species and habitats of EU conservation concern. It considers whether the objectives and requirements of the legislation are still valid, necessary and appropriate.

7.1 R.1 - Are the key problems facing species and habitats addressed by the EU nature legislation?

7.1.1 Interpretation and approach

This question relates to the relevance of the Nature Directives to the current needs of species and habitats of EU conservation concern. It examines whether the objectives of the legislation are still necessary and appropriate to address the pressures and future threats faced by the habitats and species in the EU, and whether the specific and operational objectives of the Directives are suitable in light of the key problems identified.

This question has therefore, two crucial elements – the identification of key problems that species and habitats face, and whether these are addressed by Council Directive 92/43/EEC (Habitats Directive) and/or by Directive 2009/147/EC (Birds Directive). In order to answer this question, the following judgement criteria were considered appropriate:[243]

- Problems faced by habitats and species are of significant incidence and/or magnitude.
- The Directives cover/address the key problems identified.

The Methodology used is structured in the following four steps:

(a) Interpretation of the question.
(b) Identification of 'key problems'.
(c) Examination of whether the key problems are addressed by the EU nature legislation.
(d) Key findings and conclusions.

Steps (b) and (c) are based on the evidence gathered and processed for the purposes of this evaluation ('the available evidence') and on a legal analysis of the two Directives.

Key problems are understood to mean the main pressures on, and threats to, species and habitats, and which are so geographically widespread (incidence) and/or severe (magnitude) as to potentially affect achievement of the Directives' objectives.

These criteria differentiate this question from question S.3 in section 5.3, which addresses the main factors which have inhibited achievement of the Directives' objectives, including problems associated with implementation, such as issues of stakeholder engagement and management planning. This section addresses the threats faced by habitats and species only in so far as they are relevant for the actual needs (question R.1 in section 7.1).

A key problem is considered to be addressed by EU nature legislation if two cumulative conditions are met:

- The Directives apply to that problem.
- They provide for procedures and mechanisms which deal with that problem.

It is recognised that the full extent of the key problems identified in this question cannot be dealt with by the Directives on their own. The Directives do not exist in isolation and other instruments and measures also affect specific key problems (both positively and negatively). A thorough analysis of the relationships between the Directives and EU poli-

[243] The order in which judgment criteria are listed does not imply an order of priority or the attribution of different weightings.

cies that address some of the key problems can be found in the 'Coherence' section of this report.

Before turning to the detailed analysis, it is worth recalling that the role of the Directives, as set out in the Treaty of the Functioning of the European Union (TFEU) is to set results to be achieved, with Member States free to decide their own methods and processes to some extent[244]. The Nature Directives respect the Member States' discretionary power to choose their own methods of implementation. Consequently, whether or not the objectives of the Directives are met depends not only on the objectives and provisions of the Directives, but also on how Member States put them into action.

The Nature Directives' approach is not problem-specific and sets general, specific and operational conservation objectives for habitats and species that are considered important at EU level. On that basis, Member States are required to take measures, although, as described above, it remains within their discretionary power to choose how to achieve the objectives and avoid adverse effects on habitats and species, irrespective of their cause.

7.1.2 Main sources of evidence

Key problems faced by species and habitats were identified from the 2015 State of Nature Report (EEA, 2015a) summary of Member States' reporting for the period 2007-2012. This report described the pressures (past and present impacts) and threats (foreseeable impacts) affecting the long-term viability of habitats and species of Community interest. It also identified the pressures on birds listed in Annex I of the Birds Directive and a selection of regularly occurring migratory bird species. As a common typology of threats was used by all Member States for the reporting, this provided broadly consistent, clear and robust evidence of the frequency of most pressures and threats. The report summarises Member States' reporting on habitats and species' issues at the within-country biogeographical level, and on birds' issues (N2K Group, 2011) at the national level. Member States ranked the relative importance of each threat or pressure as high importance/impact, medium importance/impact, or low importance/impact, with a maximum of five high impact pressures/threats for each habitat or species (see Box 82 for further details of the assessment procedures).

The 2015 State of Nature report presents the reported pressures and threats for birds, other species, and habitats overall, and according to their characteristic or preferred ecosystems. The results of Member State reporting are shown in Figure 19 below. At the more detailed level (level 2, see Box 82), 45 high-ranked pressures/threats were reported from the list of 75 possible categories. As most high-ranked pressures were also reported as threats, with the exception of climate change, which was mainly reported solely as a threat, the combined results of both pressures and threats were analysed in the review.

The pressures/threats to birds were assessed by Member States at the national level. A total of 13,233 threats and pressures at all levels were reported for the 455 bird taxa which are native in the EU, of which 3,756 were high-ranked pressures and threats. The pressures/threats were assigned to habitats and non-bird species at the within-country biogeographical level. A total of 21,979 reports of threats and pressures at all levels were submitted for the 233 habitat types, of which 5,128 were high-ranked pressures and

[244] Article 288(1), third subparagraph, TFEU. (Trouwborst and Fleurke, 2014) stresses the role that the legal nature of the Directives and the interpretation of the European Court of Justice (CJEU) have played in fostering biodiversity protection. According to this source, the possibility for individuals to directly enforce the Directives in national courts vis-à-vis national authorities, provided certain conditions are met, has enabled biodiversity protection, which would not otherwise have been 'easily represented in court' to obtain legal protection. The requirement that national courts must interpret domestic law in the light of the Directives once the deadline for their transposition has expired, and the possibility, under certain conditions, for individuals to hold a Member State liable for damages caused by a failure to correctly apply the Directives, have further contributed to establishing an adequate legal framework that covers a broad range of threats and problems for effective biodiversity protection. Finally, the dialogue between the CJEU and national courts through the preliminary ruling procedure has helped national courts to interpret and apply a complex area of law.

threats. There were 37,976 reports of pressures and threats at all levels for the more than 1250 non-bird taxa, of which 11,011 were high-ranked pressures and threats[245]. As Greece's reporting was received too late, the pressures and threats facing species and habitats in Greece are not analysed in the 2015 State of Nature report. The assessments are the result of expert opinion based on available information in each Member State.

Box 82 Member State reporting on pressures and threats for the period 2007-2012

Pressures are defined as factors which are acting now, or which were acting during the reporting period, while **threats** are those factors expected to be act in the future (ETC/BD, 2011b). Threats should be reasonably likely to occur within the period of the next 12 years (i.e. two reporting periods). It is possible for the same impact to be both a pressure and a threat if it has an impact now which is likely to continue. For the bird reporting, no distinction was made between pressures and threats.

A **revised classification** of threats and pressures was prepared for the 2007-2012 reporting under the Nature Directives. This list was compatible with IUCN standards (Salafsky et al, 2008), and with similar lists used for reporting under the Water and Marine Strategy Framework Directives and the Ramsar Convention, including full coverage of potential marine threats and pressures. The list is a hierarchical classification, with 17 main classes (including X for no pressures and threats, and U for unknown), subdivided into 75 categories at the second hierarchical level. Member States were asked to report threats and pressures to at least the second hierarchical level, with the option to use the third or fourth hierarchical levels (ETC/BD, 2011b). Member States were advised not to use the categories for threats and pressures outside the Member State, and threats and pressures from outside the EU territory... These categories were, however, reported as a high-ranked pressure on some marine species (birds, cetaceans and sea turtles).

Member States were asked to rank the **relative importance** of each threat or pressure as one of:

- High importance/impact, i.e. an important direct or immediate influence and/or acting over large areas.
- Medium importance/impact, i.e. medium direct or immediate influence, mainly indirect influence and/or acting over moderate part of the area/acting only regionally.
- Low importance/impact (low direct or immediate influence, indirect influence and/or acting over small part of the area/acting only regionally).

The total number of data entries was limited to 20 for each habitat or species, with a maximum of five ranked as high importance/impact. Member States were asked to use the second hierarchical level to report threats or pressures of high importance/impact. The option of adding a pollution qualifier to those categories which have a direct or indirect pollution effect was provided, but only nine Member States used it in their Article 17 reports.

Member States' reporting of pressures and threats was reasonably comprehensive (EEA, 2015a). Of 26 Member States reporting, 14 had some **data gaps** on pressures and threats to birds, but only four of these had data gaps for over 10% of bird taxa (Belgium, Bulgaria, Latvia, and Lithuania). 19 Member States had some data gaps on pressures and threats to non-bird species, but only Slovenia had data gaps for over 10%. Finally, six Member States had some data gaps on pressures and threats to habitats, but none above 10%. Greece, as stated, did not provide reports in time to be included.

With regard to the **quality** of the pressures and threats reporting, marked differences can be observed between Member States in the proportion of pressures reported as high-ranking compared to medium and low ranking. Reporting ranges from 65% of pressures to habitats highly ranked (the Netherlands) to only 10% of pressures to habitats highly ranked (Slovakia), and 46% of pressures to species highly ranked (Lithuania) to only 5% of pressures highly ranked (Slovakia). In the Danube basin, Romania reports no highly ranked pressures on any freshwater habitats, while the countries upstream report many high-ranked pressures on freshwater habitats. Some pressures are reported under different categories; for example, eutrophication caused by use of fertilisers could be reported as A08 (fertiliser use) and/or H04 (air pollution) and/or K02 (succession). Some Member States have published more detailed

[245] All species in Annex IV and/or Annex II and/or Annex V, excluding extinct species.

assessments and supporting evidence in their country reports.

Although Member State reporting does not constitute a quantitative assessment of pressures and threats to EU protected habitats and species, it remains the only current EU wide assessment based on a systematic classification of pressures and threats. There is no other fully quantified assessment of pressures and threats to biodiversity available at the EU level (EEA, 2015c). Therefore, the information on pressures and threats from the 2015 State of Nature report was supplemented by a literature review to identify additional evidence for the impact of key pressures and threats on European protected species and habitats. In answering this question we have used the overall reporting of pressures and threats, in order that the findings are not affected by the different approaches taken by Member States to distinguish between high-ranking and medium and low-ranked pressures (see Box 82). However, those pressures which were frequently given a high rank were considered in the literature review.

The literature review focused on key meta-reviews of evidence in peer-reviewed scientific papers and reports (e.g. from the Commission, the European Environment Agency, Member States and research centres), as well as IUCN European Red List assessments. The literature review included references identified by the stakeholders consulted, the analysis team, and expert submissions. The literature review was limited in scope because of the large number of potential sources.

Of 112 stakeholders consulted, 50 provided directly relevant answers in their replies to the evidence gathering questionnaire[246]. Of these 50, 26 answers came from NGOs, 19 from Member State nature protection authorities, six from other authorities, and one from industry stakeholders[247]. Very few stakeholders supported their views with evidence of the incidence or magnitude of key problems.[248] Any evidence provided is cited in the analysis below.

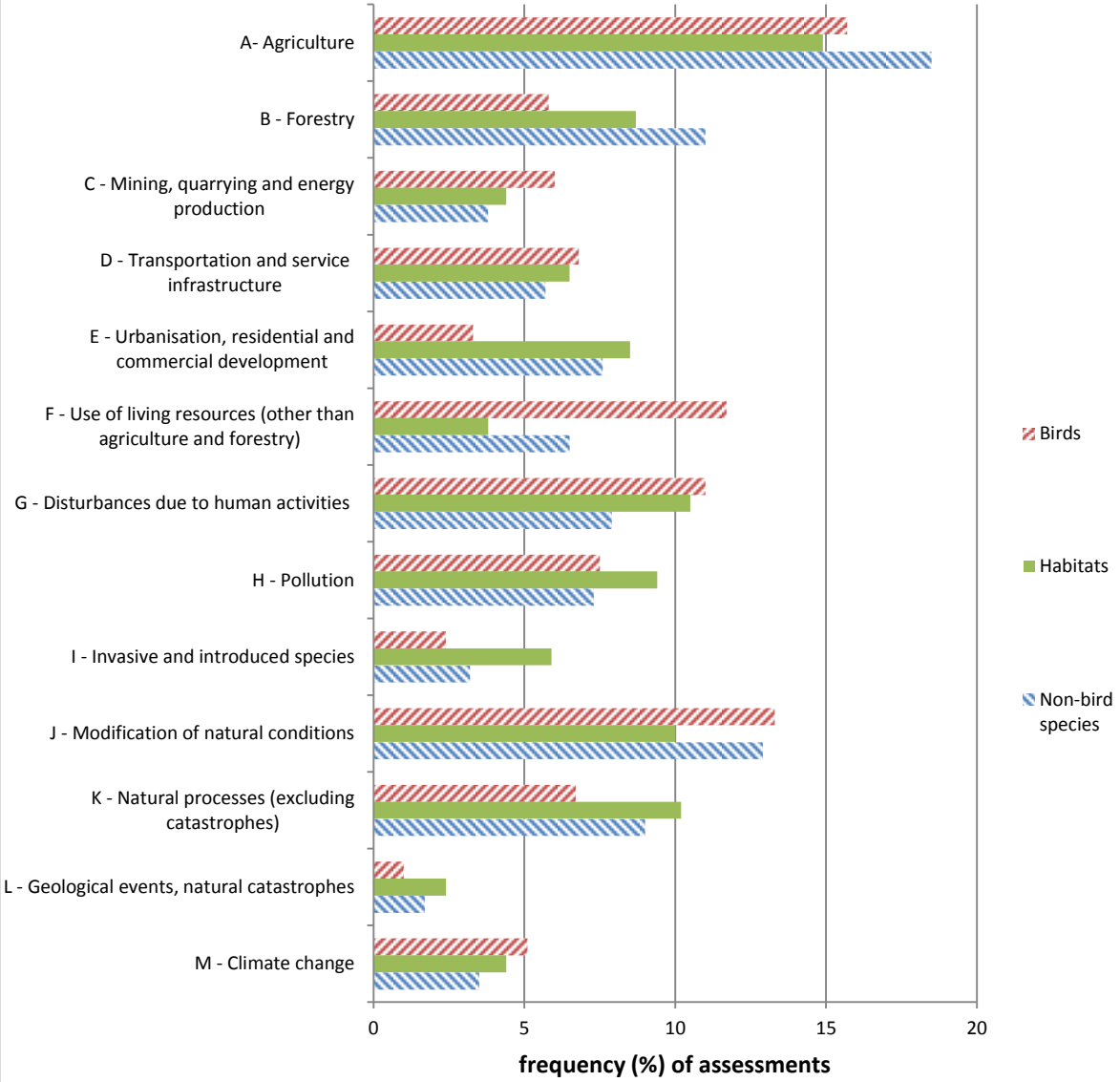
7.1.3 Analysis of the question according to available evidence

7.1.3.1 Identification of key problems

Figure 19 indicates the percentage of overall Level 1 pressures (i.e. total of those reported as high, medium and low) reported for birds, non-bird species and habitats by Member States for the 2007-2012 reporting period, according to the 2015 State of Nature Report (EEA, 2015a). The frequency indicates the proportion of habitats and species occurring in each Member State reported as having that pressure or threat category (NB for habitats and non-bird species this was reported within each biogeographical region within each Member State). It should be noted, however, that this is not a statistically analysed assessment.

[246] Other stakeholders either did not answer the question or provided an inconclusive answer (e.g. vague or irrelevant).
[247] Half of the 26 answers received from NGOs contained the same text, suggesting that the responses were coordinated rather than original contributions. As this is not a statistical survey, however, the responses remain valid, as do the findings.
[248] This lack of evidence may depend on factors which are unrelated to the validity of the claims (e.g. limited time invested in responding, evidence not being readily available to the respondent).

Figure 19 Frequency (%) of assessments that reported pressure/threat categories for birds, non-bird species and habitats for 2007-2012



The total number of assessments for high-ranked and overall threats and pressures for birds is 3, 756 and 13, 233 respectively. The total number of assessments for high-ranked and overall threats and pressures for habitats is 5, 128 and 21, 979 respectively. The total number of assessments for high-ranked and overall threats and pressures for non-bird species is 11, 011 and 37, 976 respectively. Greece did not provide an Article 12 or 17 report.

Source: based on data from 2015 State of Nature Report (EEA, 2015a). .

The results for each category of pressure/threat, along with the supporting evidence are described below. They are presented in descending order of importance according to the frequency of overall pressures/threats identified by Member States. The second half of this question response then describes the measures in the Nature Directives that address these pressures/threats.

7.1.3.1.1 Agriculture-related pressures

Agriculture-related pressures were the most frequently reported category of pressures and threats affecting birds (reported in 15% of assessments), non-bird species (18%) and habitats (15%). This reflects the relatively high proportion of European protected species and habitats completely or partly dependent on the continuation of appropriate agricultural activities, in particular, low intensity grazing and/or cutting of cropland, grassland, wetland, heathland & shrub, and sparsely vegetated ecosystems (including coastal dunes). Both the abandonment of appropriate agricultural activities and/or the intensification of activities may put pressure on EU protected habitats and species.

Within the 'agriculture' category, the most frequently mentioned high ranking pressures/threats reported by Member States are modification of cultivation practices, grazing and mowing/cutting (including over and under management), use of pesticides, biocides, hormones and chemicals, restructuring of agricultural holdings and fertilisation practices.

The published literature shows substantial evidence of the impacts of agricultural improvements and intensification on farmland birds (Berg et al, 2015; Butler et al, 2010; Donald et al, 2001; Donald et al, 2006; Guerrero et al, 2012; Wretenberg et al, 2007), grassland and wetland butterflies (van Swaay et al, 2006), for example in Slovenia (Verovnik et al, 2011b), grassland and wetland plants dependent on low-intensity grazing and/or mowing (Bilz et al, 2011; Hötker and Leuschner, 2014; Rassi et al, 2010), and European protected plant species dependent on extensive cereal cultivation (IUCN, 2015). IUCN Red List experts assessed agricultural intensification in wood pastures (such as dehesa) and orchards as a major pressure on saproxylic beetles affecting 25 out of 75 threatened species in Europe (Nieto and Alexander, 2010). Similar assessments found the impacts of livestock farming to be a major pressure/threat on 13 endangered bird species in Europe, and the impacts of annual & perennial crop cultivation a major pressure/threat on 27 endangered bird species in Europe (Birdlife International, 2015b).

There is evidence of the indirect impact of some pesticides on certain farmland birds from the UK (Bright et al, 2008; Holland et al, 2012; Morris et al, 2005), France (Chiron et al, 2014) and Germany (Jahn et al, 2014). In addition, there is increasing evidence of widespread impacts of pesticides on freshwater invertebrates (Beketov et al, 2013; van der Sluijs et al, 2015), toxic effects of fungicides (Brühl et al, 2013) and herbicides (Wagner et al, 2013) on amphibians, with evidence also found for rodenticides poisoning European protected birds and other vertebrates (Lemus et al, 2011; Sánchez-Barbudo et al, 2012; Walker et al, 2013).

At the same time the abandonment of extensive agricultural management is affecting numerous European protected species and habitats: evidence cites the loss of specialist farmland bird species in the North-west Mediterranean region and South-eastern Europe (Chiron et al, 2013; Nikolov, 2010; Sirami et al, 2008; Zakkak et al, 2015); Annex I juniper mattoral habitat in Portugal, France and Italy (Calaciura and Spinelli, 2008); Annex I semi-natural grasslands in Ireland (O'Neill et al, 2013), Bulgaria (Kazakova and Stefanova, 2010; Vassilev et al, 2011); and Slovenia (Kaligaric and Ivajnsic, 2014). IUCN Red List experts have assessed the abandonment of wet grassland as a critical threat to endangered butterflies (van Swaay et al, 2010), with lack of grazing on coastal grassland & saltmarsh stated as a major pressure on *Vertigo* mollusc species (Cuttelod et al, 2011).

An ongoing loss of semi-natural grasslands is attributed to both intensification, and abandonment of extensive mowing and/or grazing, resulting in scrub invasion. Documented losses include loss of 7.4% of species-rich grassland in Germany to intensification or ploughing between 2003 and 2008 (BfN, 2014) (BfN, 2014; Dieterich and Kannenwischer, 2012) and losses to arable within Natura 2000 areas in Germany (BfN, 2014) (BfN, 2014; Dieterich and Kannenwischer, 2012) and losses to arable within Natura 2000 areas in Germany (NABU, 2014a), modification or loss of 40% of UK peatlands by conversion to agriculture (Bain et al, 2011). The German NGOs pointed to a complaint sent to the Commission on the failure of Germany to protect Annex I grassland habitats (NABU, 2014a) and to prevent the decline of meadow-breeding birds (NABU, 2014b).

IUCN Red List experts assessed the loss of treelines in field margins and hedgerows as a major pressure on threatened bat species in Europe (Frey-Ehrenbold et al, 2013; IUCN, 2015). They also assessed the loss of small ponds, temporary ponds and traditional artificial habitats such as wells, stone troughs, and irrigation channels in agricultural areas, as a major pressure on amphibian populations (Temple and Cox, 2009).

7.1.3.1.2 Modification of natural conditions

Pressures associated with the modification of natural conditions include the effects of human induced changes in hydraulic conditions on freshwater, coastal and marine habitats and species; human induced habitat fragmentation on a range of habitats and species; and changes in fire regimes on forest and scrub habitats. Many modifications are directly related to agricultural and/or forestry uses (for example land drainage and water abstraction), while other modifications are related to urbanisation, other infrastructure development, or energy production (e.g. hydropower dams).

Changes in hydrological conditions: The literature review provides evidence that freshwater habitats and species have been extensively affected by modifications of rivers, lakes and other water bodies, including dams (Keder and McIntyre Galt, 2009; Liška et al, 2015; Lundqvist et al, 2008; Ordeix et al, 2011; Österling and Söderberg, 2015), canalisations (Schmutz et al, 2015), banks and dams that result in loss of floodplain habitats and the habitats created by natural river dynamics, drainage and water abstraction or other water diversions that cut off water flow (Robledano et al, 2010), and dredging and/or depositing of sediments. Coastal habitats and species have been extensively affected by dykes, embankments and other flood defences, transportation of sedimentss, barrages, altered salinity due to water flow changes (Pérez-Ruzafa et al, 2011), and land reclamation. There is evidence of these kinds of modification causing major pressures on freshwater fish (Freyhof and Brooks, 2011), molluscs (Cuttelod et al, 2011), dragonflies, wet grassland butterflies (van Swaay et al, 2010) and plants (IUCN, 2015), mire habitats (Normander et al, 2009; Peltomaa, 2007; Šefferová et al, 2008), and groundwater dependent habitats (Wamelink et al, 2013). Evidence shows that marine habitats have been affected by sand extraction, dredging and sedimentation (Díaz-Almeda and Duarte, 2008; Korpinen et al, 2015; Piazzi et al, 2012), as well as altered salinity due to water desalination facilities (Díaz-Almeda and Duarte, 2008). The NGO stakeholder response from Bulgaria alleged that the construction of small hydropower plants has caused significant negative impacts on the conservation status of a number of species and habitats dependent on rivers and streams in areas that have now been designated as SCIs.

Habitat fragmentation: Studies have quantified landscape fragmentation due to the transport network in the EU (EEA and FOEN, 2011) and forest fragmentation at the EU scale (Estreguil et al, 2013), and these findings are supported by some localised assessments (e.g. Le Gouvernement du Grand-Duché de Luxembourg, 2012; Wamelink et al, 2013). There is a large body of literature on the impacts of habitat fragmentation on species.

Changes in fire regimes: Inappropriate management burning (e.g. too frequently, or on peat soils) has damaged, and continues to threaten, upland heaths, grasslands and blanket bogs in the UK (Brown et al, 2014; Glaves et al, 2013; Tucker, 2003). Severe wild fires can have major impacts on Mediterranean scrub and forest habitats (Papanastasis et al, 2002; Ramón Vallejo et al, 2012), while a lack of fires is a limiting factor on biodiversity in Boreal forests (Birdlife International et al, 2013; Laarmann et al, 2013).

7.1.3.1.3 Forestry-related pressures and threats

Forestry pressures stem mainly from unsuitable forest management in existing forest areas rather than absolute increases or decreases in forest area, as, at the continental scale, the area of forest in Europe is increasing. The literature review provides evidence of pressures in a number of areas, such as large-scale clear cutting of areas within forest

on the European Flying Squirrel (Jokinen et al, 2015; Rassi et al, 2010; Santangeli et al, 2013), and the loss of deadwood and standing dead trees because of intensive management, on European protected forest birds in Finland (European Commission, 2015c), saproxylic beetles (Nieto and Alexander, 2010), forest bats (Zehetmair et al, 2015), and some molluscs, bryophytes and lichens (Paillet et al, 2010). There is evidence of the loss of Annex I forest habitats from clear cutting in Sweden (Sahlin, 2010), Mediterranean countries (Zaghi, 2008), and Natura 2000 sites in Romania (Knorn et al, 2013). A lack of management, leading to a loss of open areas in woodland, is a factor in the decline of some European protected woodland butterflies (van Swaay et al, 2006; van Swaay et al, 2010) and plants. There is less evidence, however, of the impact of fertilisers and pesticides on forest species (Freyhof and Brooks, 2011).

Afforestation on peat bogs and mire habitats has been a significant pressure in Ireland (NPWS, 2013b), the UK (Anderson, 2010), and Finland (Similä et al, 2014), although the rate of new afforestation on these habitats has decreased or stopped. Finally, afforestation is affecting some coastal and Mediterranean habitat types (ICNB, 2014; Picchi, 2008).

7.1.3.1.4 Natural processes (excluding catastrophes)

Member States reported natural succession as a high-level pressure on all terrestrial and freshwater ecosystems except cropland, which is linked to the abandonment of low-intensity agriculture and other appropriate management systems (see above) and/or eutrophication from nitrogen pollution (see below)[249].

7.1.3.1.5 Disturbances due to human activities (recreation and associated structures e.g. golf courses, ski pistes)

Member States reported disturbances due to human activities - principally outdoor recreational activities - as a high-level pressure on a significant subset of species in most ecosystems (including marine), and on habitats in sparsely vegetated ecosystems (including alpine habitats, and coastal dune and rocky habitats). IUCN Red List experts point to significant pressures on particular species groups, principally in alpine and coastal habitats, including threatened terrestrial molluscs (Cuttelod et al, 2011), vascular plants (Ballantyne and Pickering, 2013; IUCN, 2015), reptiles (Cox and Temple, 2009), and bats (IUCN, 2015). Impacts come from developments such as ski resorts (Patthey et al, 2008), and from activities such as rock climbing and hiking (Zuberogoitia et al, 2008), tourism in caves (IUCN, 2015), and coastal recreation activities. Even relatively low-impact activities such as walking or hiking, where visitors do not deliberately disturb animals, have nonetheless been shown to have negative effects on certain birds (Holm and Laursen, 2009; Steven et al, 2011; Steven and Castley, 2013), such as birds in the grouse family (Moss et al, 2014; Rösner et al, 2013; Storch, 2007; Thiel et al, 2011). Coastal and marine recreation activities, such as beach tourism and boating, are associated with negative impacts on coastal plants (Farris et al, 2013), sea turtle nesting (Casale and Margaritoulis, 2010), certain birds (Kerbiriou et al, 2009), and marine species and habitats (Hendriks et al, 2013; Montefalcone et al, 2008).

7.1.3.1.6 Pollution

Terrestrial and marine pollution were identified by Member States as a high-level pressure/threat on freshwater birds, other species and habitats, and on some wetland, forest, grassland and heath/scrub habitats. The literature review confirms that eutrophication caused by nitrogen deposition from air pollution is a significant widespread threat to wetlands, grasslands, dunes, forests, heath and scrub, and rocky habitats,

[249] Natural succession is the gradual process by which ecosystems with their communities of species change and develop over time, for example grassland becoming forest.

particularly in North-western and Central Europe (Hicks et al, 2011; Posch et al, 2012; Slootweg et al, 2014; Whitfield and McIntosh, 2014). Pressure from eutrophication caused by nitrogen deposition is expected to continue despite air pollution reduction targets and policies (EEA, 2014a). Nitrogen deposition is expected to be a key constraint for the Netherlands in achieving Favourable Conservation Status for its habitats and species (Wamelink et al, 2013). By contrast, acidification impacts from air pollution have reduced substantially in Western Europe and more slowly in Eastern Europe, with beneficial effects on sensitive species and habitats. Recovery of some habitats may, however, take decades (EEA, 2014a).

Nitrogen and phosphate pollution of surface waters is declining (EEA, 2015d), and this has contributed to the recovery of some species (Kalkman et al, 2010). Pollution from agricultural fertiliser use remains a major pressure on freshwater fish (Freyhof and Brooks, 2011), freshwater molluscs (Cuttelod et al, 2011) and Natura 2000 sites (Jensen et al, 2015; Kazun, 2014; NRW, 2014). Pollution of groundwater is generally declining (EEA, 2015d), but is a problem for cave-dwelling freshwater species (Cuttelod et al, 2011) and in some groundwater-fed habitats such as fens (NPWS, 2013b; Šefferová et al, 2008).

The literature indicates that eutrophication from terrestrial run-off is a major pressure on marine habitats and species in most parts of the Baltic (HELCOM, 2010) and Mediterranean Seas (Díaz-Almeda and Duarte, 2008; Micheli et al, 2013; Piazzi et al, 2012). Hypoxia caused by eutrophication is also a major pressure in most of the Baltic (Conley et al, 2011; Korpinen et al, 2015) and the Black Sea (HELCOM, 2010). Marine pollution by certain hazardous substances is above regulatory limits in many places (European Commission, 2014f). Marine litter is an increasing pressure, with evidence of significant impacts on some marine birds (van Franeker et al, 2011), grey seals (Allen et al, 2012), sea turtles and whales (Deudero and Alomar, 2015), although systematic assessments are lacking. Frequency of oil spills and chemical discharges are reducing (Camphuysen, 1998; EEA, 2015e; OSPAR Commission, 2010), although large spills are still assessed as a significant threat to marine birds (Birdlife International, 2015b; Burton et al, 2010). Evidence also shows that particle emissions have accumulated in marine sediments (Veltman et al, 2011). Underwater (marine) noise generated by seismic surveys, pile driving for energy infrastructure, and marine munitions clearance is a significant pressure on cetacean populations (Gedamke et al, 2011; Koschinski, 2011; OSPAR Commission, 2009; Pirotta et al, 2014) and possibly some fish (Perrow et al, 2011).

7.1.3.1.7 Use of living resources other than agriculture and forestry (hunting, commercial fishing, collecting, etc., both legal and illegal)

Member States reported high-ranking pressures from the following: hunting and collection of wild animals on some birds and large carnivores; maintenance of high densities of game populations on forest habitats; fishing and harvesting of aquatic resources on marine birds, non-bird species and habitats; and aquaculture on some freshwater birds, coastal birds, and non-bird species. A recent investigation identified illegal killing as a major pressure on 42 endangered bird species in Europe (Birdlife International, 2015a; Birdlife International, 2015b), and additional evidence refers to raptor killings (Knott et al, 2010; Leitão et al, 2014; NABU et al, 2014; NPWS, 2013a). There is some evidence that hunting is limiting large carnivore populations in a number of Member States, both illegal killing (although it is decreasing) (Majic, 2014; Pohja-Mykrä and Kurki, 2014b), or legal quotas for hunting in some Member States (Jerina et al, 2014; Jerina and Krofel, 2012; Knott et al, 2014) (although they are becoming more sustainable) (Boitani et al, 2015). There is evidence that genetic depression or low genetic diversity is affecting large carnivore populations in Sweden (Laikre et al, 2012; Räikkönen et al, 2013) and Slovenia (Sindicic et al, 2013).

There is evidence that grazing and disturbance caused by large game populations is affecting forest habitats (Ammer et al, 2010; Vacek et al, 2014) and disturbing forest birds (Eglington and Noble, 2010).

The literature review identified an increasing body of evidence for the substantial pressure of certain fishing methods, in particular bottom trawling, on marine habitats in the Black Sea (Micheli et al, 2013), Mediterranean (Díaz-Almeda and Duarte, 2008; Martín et al, 2015; Puig et al, 2012), North Sea (Atlantic) (Tillin et al, 2006; van Denderen et al, 2014) and Baltic (Korpinen et al, 2015), finding food chain impacts on EU protected species through overexploited fish stocks (Svedäng, 2010; Tsikliras et al, 2015), impacts of dredging for shellfish on bird communities (Atkinson et al, 2010; Burton et al, 2010), and gillnetting on seabirds (Degel et al, 2010) and cetaceans (European Commission, 2011c; OSPAR Commission, 2010) caught as bycatch. Overfishing was assessed as a major pressure on 15% of threatened freshwater fish in Europe and 20% of all European freshwater fish species (Freyhof and Brooks, 2011). The illegal collection of protected marine molluscs is reported from Greece (Katsanevakis et al, 2011). Marine and freshwater aquaculture is associated with a range of impacts in the other categories mentioned here (sedimentation, chemical water pollution and eutrophication, release of invasive alien species). Direct impacts on species can occur if unsustainable shellfish harvesting practices, predator control and displacement of birds and seal populations take place (European Commission, 2012e; OSPAR Commission, 2010) (European Commission, 2012e).

7.1.3.1.8 Urbanisation, residential and commercial development

Member States reported high-level pressures on habitats caused by urbanisation, residential and commercial development in the Black Sea and Mediterranean regions at a rate almost three times higher than the overall average for all regions, and reported the pressures principally in sparsely vegetated and heath/scrub coastal habitats (EEA, 2015a). This is supported by the literature, which provides evidence of the pressure of coastal development on endangered Mediterranean species, and to coastal habitats in other parts of Europe (Ryle et al, 2009). Development was also reported as a high-level pressure on some cropland, grassland and forest species, and grassland habitats. This is likely to reflect the impact of both urban sprawl and habitat fragmentation, as documented in the literature. Between 1990 and 2000, soil was sealed by urban, residential and commercial development at a rate of at least 1,000 km² per year (Jones et al, 2012). However, it is not possible to assess to what degree soil sealing has affected EU protected habitats and species.

IUCN Red List experts assessed loss of habitat due to urbanisation in Europe as a major pressure on approximately 40% of endangered terrestrial mollusc species (Cuttelod et al, 2011), on 26 out of 75 threatened saproxylic beetles (Nieto and Alexander, 2010), and endangered reptiles in coastal and mountain habitats (Temple and Cox, 2009). Although sewage discharges associated with urbanisation have substantially decreased, they are still assessed as a major pressure on some freshwater fish (Freyhof and Brooks, 2011) and on a third of European freshwater mollusc species, especially in Southern and Eastern Europe (Cuttelod et al, 2011). Building renovation is also assessed as a pressure on bat colonies and roosts (IUCN, 2015).

7.1.3.1.9 Transportation and service infrastructure

Member States reported the transportation network as a high-level pressure on some protected species in all onshore ecosystems, while the literature review highlighted the evidence of habitat fragmentation caused by transport networks (see above) and direct impacts on birds (Mammides et al, 2015) and large mammals (Alterra, 2008; Fechter and Storch, 2014). IUCN Red List experts assessed habitat loss from road construction as a major pressure on approximately 20% of endangered terrestrial mollusc species in Europe (Cuttelod et al, 2011). Freshwater shipping is associated with a range of

unquantified potential threats in the other categories mentioned here (invasive alien species, modification of natural hydrological conditions associated with canalisation and regulation of water flow, dredging and sediment dumping, and pollution from ship waste, bilge water or accidental spills) (European Commission, 2012f). Marine ship traffic has been quantified as a spatially significant pressure on marine ecosystems (Korpinen et al, 2015; Micheli et al, 2013). Port construction and operation and the associated dredging and habitat loss is a major pressure on many European estuaries (European Commission, 2011b; Pascual et al, 2012). There is, however, evidence to suggest that biodiversity protection can be successfully integrated into port operation (European Commission, 2011d; Snep and Ottburg, 2008; Vikolainen et al, 2013).

Member States reported utility and service lines as a high-level pressure on some bird species, for which the literature review provides evidence of significant mortality of soaring bird species from certain power lines (Birdlife International, 2015b; Demerdzhiev, 2014; Rubolini et al, 2005). However, mortality rates can be significantly reduced by better design and spatial positioning of power line infrastructure (Scrase, 2015).

7.1.3.1.10 Mining and quarrying, energy production

Member States reported mining and quarrying as a high-level pressure on some wetland habitats, sparsely vegetated habitats, and freshwater habitats. This corresponds to evidence from the literature review of the impacts of peat extraction (Friends of the Irish Environment, 2011; Kimmel et al, 2010; Stallegger, 2008), oil shale extraction from under bogs and fens in Estonia (Minayeva et al, 2009), and gravel extraction in rivers affecting fish (Freyhof and Brooks, 2011). The review, however, also found evidence of species benefiting from the habitats created by quarrying activities (European Commission, 2010a). Environmental pressures coming from extraction of non-energy and energy mineral resources differs.

Member States reported marine renewable energy (i.e. wind farms) as a high-level pressure on some bird species, but did not report any high-level pressures from onshore wind. The literature review shows evidence of mortality from onshore wind farm collisions affecting some bats (Camina, 2012; Georgiakakis et al, 2012; Rydell et al, 2010a; Rydell et al, 2010b; Voigt et al, 2012), and bird of prey species (Bellebaum et al, 2013; Hötker et al, 2014). There is also evidence of displacement of some birds (Gove et al, 2013; O'Donoghue et al, 2011), while other species are attracted to food resources associated with turbine structures (Lindeboom et al, 2011).

7.1.3.1.11 Invasive native and non-native species

Member States reported invasive non-native species as a high-level pressure on some habitats, bird species and other species, primarily in sparsely vegetated, freshwater and marine ecosystems. Evidence shows that that invasive alien species are a significant pressure on particular species groups, notably threatened freshwater fish (Freyhof and Brooks, 2011) and amphibians (Temple and Cox, 2009), and certain threatened forest habitats (Guimaraes and Olmeda, 2008; WWF Hungary, 2011), but there is insufficient evidence to assess the overall impact on biodiversity of the 12,000 alien species present in Europe (Malak et al, 2014). One review documented negative ecological effects of 101 invasive alien species in the EU (Kettunen et al, 2009b). Introduced diseases are an emerging threat, particularly to amphibians (IUCN, 2015; Price et al, 2014) and freshwater invertebrates[250]. Invasive tree diseases are a threat to certain forest habitats and EU protected species dependent on particular tree species. However, while there is some evidence with respect to the impact of invasive alien species on marine habitats and species, major data gaps remain (Katsanevakis et al, 2014; Ojaveer and Kotta,

[250] Vrålstad, T., Johnsen, S. I. and Taugbøl, T. (2011) NOBANIS – Invasive Alien Species Fact Sheet – Aphanomyces astaci. – From: Online Database of the European Network on Invasive Alien Species – NOBANIS www.nobanis.org accessed 13.09.15. https://www.nobanis.org/globalassets/speciesinfo/a/aphanomyces-astaci/aphanomyces_astaci.pdf accessed on 17.02.16

2015; Piazzi et al, 2012). IUCN Red List experts assessed invasive alien species as a major pressure/threat on 21 endangered bird species in Europe, and invasive native species as a major pressure/threat on 14 endangered bird species in Europe (Birdlife International, 2015b).

7.1.3.1.12 Climate change

Member State reports frequently mention climate change as a threat but it was ranked as a high-level threat for only a subset of species groups and habitats (EEA, 2015a). Climate change impacts provided in the literature are largely predictions based on modelling, with some emerging direct evidence of impacts on certain species (Delgado et al, 2009; Koskimäki et al, 2014; Lehikoinen et al, 2013). Only limited information is available to assess current pressures (Bertzky et al, 2011; Malak et al, 2014). Climate change is expected to shift some species ranges and shrink others, particularly alpine and arctic species (Kujala et al, 2011; Rassi et al, 2010; Sajwaj et al, 2011; Virkkala et al, 2013; Vos et al, 2008). Mismatches between suitable climatic zones for species and their food are expected to occur, and have for, example, been predicted for butterflies and their food plants (Settele et al, 2008), and for Iberian lynx and rabbits (Fordham et al, 2013)[251][252].

Assessments predict significant impacts of climate change on the terrestrial Natura 2000 network (Araujo et al, 2011; Balzer et al, 2007; Beierkuhnlein et al, 2014; Wilke et al, 2013), and marine habitats and species (Marbà et al, 2014; Micheli et al, 2013). Some species are predicted to be less protected by the Natura 2000 network (Mazaris et al, 2013), including amphibians (D'Amen et al, 2011; Popescu et al, 2013), while other species will benefit from Natura 2000 areas to a greater extent than they do currently (Johnston et al, 2013; Kujala et al, 2011).

7.1.3.2 Whether the Nature Directives address key problems faced by species and habitats

Having identified these main problems faced by the habitats and species in the EU, the second judgement criterion has been applied to answer whether or not the Directives cover/address the key problems identified.

This judgment criterion is made up of two elements:

- Whether the Directives cover a key problem – this part of the criterion is verified where the Directives apply to the key problem.
- Whether the Directives address a key problem – this part of the criterion is fulfilled where the Directives provide for procedures and mechanisms to deal with the key problem.

Both elements must be met in order for the judgment criterion to be considered fulfilled.

7.1.3.2.1 Evidence gathering questionnaire responses

36 of 50 stakeholder responses to the evidence gathering questionnaire clearly expressed the opinion that the Directives apply to key problems.[253]

Out of the 36 responses, six stated that this is so 'by definition', as the application of the Directives is triggered by the existence of negative effects on protected habitats and species, regardless of the underlying cause[254]. 10 responses did not provide any clear

[251] *Lynx pardinus*.
[252] *Oryctolagus cuniculus*.
[253] This opinion was clearly expressed in 36 of the 50 valid responses received.
[254] See Article 1(a) and 2 of Directive 92/43/EEC and Article 2 of Directive 2009/147/EC.

view on whether or not the Directives apply to all relevant key problems. Four respondents expressed the view that the Directives do not cover all key problems, mainly because climate change is not sufficiently addressed.

Clear opinions on whether or not the Directives provide for procedures or mechanisms to address the key problems were provided by 31 of the responses received. The majority (27) expressed the view that the Directives provide for procedures to address key problems, while those who disagreed essentially saw the Directives' approach as being too static to adapt to change (whether natural or caused by climate change).

7.1.3.2.2 Analysis

In order to investigate if the Directives address key problems, a legal analysis of the Directives and relevant case law was carried out. The results are presented below, following the structure of the Directives themselves. This structure avoids repetition where, as is often the case, the same provisions apply to several key problems.

The objectives of the Birds and Habitats Directives

The general objective of the Birds Directive is to maintain or adapt the population of relevant species at a level that corresponds to ecological, scientific and cultural requirements, while taking into account economic and recreational requirements[255]. The overall objective of the Habitats Directive is to ensure the conservation of natural habitats, wild flora and fauna, in particular by maintaining or restoring relevant habitats and species at Favourable Conservation Status[256]. In doing so, economic, social and cultural requirements, as well as regional and local characteristics, must be taken into account[257]. From the perspective of the legal obligation of results, therefore, this analysis assesses whether the measures under the Nature Directives (either linked to site protection or to species protection objectives) address all or some of the key problems that have an impact on the Favourable Conservation Status of EU protected habitats and species, and equivalent status in birds.

Establishment of the Natura 2000 Network

As described in section 2.3 a specific objective of the Nature Directives is the establishment of Natura 2000, which, according to the Habitats Directive, should comprise a coherent network of SPAs designated under the Birds Directive (for species listed in Annex I of the Directive and regularly occurring migratory species), and SACs under the Habitats Directive, in proportion to the representation within their territories of EU protected habitats and species[258][259]. Member States are expected to establish conservation measures to protect and restore habitats and species within Natura 2000 sites, and to take measures to protect them from damage. Furthermore, where the Member States consider it necessary, according to Article 3(3) of the Habitats Directive, they should endeavour to improve the ecological coherence of the Natura 2000 network by maintaining features of the landscape essential for the migration, dispersal and genetic exchange of wild species. Article 10 of the Habitats Directive provides that Member States should further endeavour to encourage the management of features of the landscape which are of major importance for wild flora and fauna. Article 4(3) of the Birds Directive refers to the objective that the designated sites should form a coherent whole which meets the protection requirements of the relevant species.

These provisions thus encourage Member States to protect habitats, species populations, and landscape features in order to ensure the achievement of the conservation objectives of the Directives and the Favourable Conservation Status of habitats and species. The

[255] Article 2, Birds Directive.
[256] Article 2(1) and (2), Habitats Directive.
[257] Article 2(3), Habitats Directive.
[258] Article 3(1), Habitats Directive.
[259] Article 3(2), Habitats Directive.

establishment of Natura 2000 as a coherent network is therefore intended to address the pressures (and threats) that are causing loss and fragmentation of EU protected habitats, including pressures associated with urbanisation, residential and commercial development, transportation and service infrastructure, mining, quarrying, and energy production, and other modifications of natural conditions related to human activities. Positive evidence for the role of the Natura 2000 network in addressing pressures that result in habitat loss is provided by studies showing that species declines and habitat loss rates are slower inside Natura 2000 sites than outside the network. For example, the loss of heathland and scrub, sparsely vegetated land and natural grassland was significantly greater outside Natura 2000 than inside between 2000 and 2006 (EEA, 2015a). However, there is also evidence that some habitat loss and fragmentation is continuing inside the Natura 2000 network (for examples see evidence under Urbanisation, residential and commercial development above).

The Habitats Directive allows for the Natura 2000 network to be adapted to environmental change, including climate change, even though the procedures and mechanisms set out in the Directives were not originally intended to specifically address the threat of climate change (Cliquet, (2014).

Member States may propose **adaptations** to the list of sites, to the Commission, in light of the results of their surveillance of the conservation status of habitats and species. Under the Birds Directive, a Member State may exclude an area from an SPA if it no longer provides the most suitable territories for the conservation of species of wild birds within the meaning of Article 4(1) of the Directive[260]. Such adjustments may be appropriate, for example, where a protected species hitherto present within a SAC/SPAs migrates away for good. Similarly, under the Habitats Directive, Member States are under an obligation to designate new sites (ECJ C-209/04) and adapt existing ones if this becomes appropriate, in light of the results of monitoring of the conservation status of habitats and species.

In addition to adaptations of the site (or the list of sites) under Article 4(1) of the Habitats Directive, the Commission, with the involvement of the representatives of the Member States, must periodically review the contribution of the Natura 2000 network to the achievement of the Directive's objectives (Article 9 of the Habitats Directive). Upon review, if natural developments so warrant, on the basis of monitoring results, **declassification** of an SAC (or part of it) may be considered (ECJ C-191/05). This provision could, in principle, be used to adapt the Natura 2000 network to natural changes by declassifying SACs (or parts thereof) which no longer require protection (Justice and Environment, 2011). However, the Directive only allows this in the case of 'natural developments' – a term that, to our knowledge, is not defined in the Directive, case law, or any Commission guidance, and one which raises the question of whether climate change can be considered a natural development for the purposes of this provision[261]. This situation could lead to uncertainty and lack of confidence for decisions at site level. In addition, while the Habitats Directive refers to the possibility of declassifying SACs, no equivalent possibility is explicitly given under the Birds Directive. This difference between both Directives has not had any practical consequence, as, in practice, this possibility has already been used under the Birds Directive (see above and case C-191/05 in relation to altering, without scientific basis, a demarcation of an SPA excluding from it areas providing habitats for species for whose protection the SPA was designated).

[260] C-191/05 Commission of the European Communities v Portuguese Republic [2006] ECR I-06853.

[261] No case law was found that would specifically clarify whether climate change can be considered as 'natural change' for the purposes of declassifying a Natura 2000 site under Article 9 of the Habitats Directive. However, in case C-191/05, the CJEU ruled that a Member State, in order to justify the reduction of a SPA protected under the Birds Directive, must prove that the deterioration in conservation status is due to objective circumstances over which the Member State has no control. An example of such objective circumstances is volcanic eruptions. In another judgment – case C-6/04 – the Court qualified climate change as a 'structural environmental [change] that [jeopardises] the conditions for the continued existence of the protected habitats and species in the Natura 2000 sites concerned'. While the Court did not address in either case the question of whether or not climate change qualifies as 'natural change' within the meaning and for the purposes of Article 9 of the Habitats Directive, they both contribute to the impression that climate change-induced developments may not warrant declassification under Article 9.

In addition, legal analyses (Cliquet, 2014) and reviews (Van Teeffelen et al, 2014) find that the Directives' provisions on connectivity (notably Articles 3 and 10 of the Habitats Directive) lack legal clarity and are insufficiently implemented, so the emphasis of the network implementation so far has been on conserving habitats and species in core areas rather than implementing connectivity measures. For example, in the Netherlands, the government established in 2010 discontinued funding for the national ecological network programme based on their interpretation of the Directives as merely allowing – but not requiring – the development of ecological corridors (Squintani, 2012).

Based on the above, it can be concluded that while the framework provided by the Directives can be applied to respond to climate change, the procedures and mechanisms set out in the Directives are not specifically tailored to address this key problem. Nevertheless full and imaginative implementation of the Birds and Habitats Directives can help wildlife both inside and outside protected areas (Huntley et al (2007). According to these authors, 'we have many of the instruments we need to help wildlife adapt to climate change'. (Johnston et al, 2013; Pearce-Higgins et al, 2011).

Further effective implementation of the Directives would help to mitigate climate change impacts because the achievement of the general objective of habitats and species Favourable Conservation Status will increase the resilience of their populations to climate change (Dodd et al, 2010). This is the case for those measures related to site protection that increase habitat quality (because, they are likely to increase breeding productivity and therefore increasing emigration rates and successful dispersal and colonisation) as well as actions that increase connectivity (reducing habitat fragmentation which may increase the resilience of existing populations) (Hanski, 1999b; Opdam and Wascher, 2004; Opdam and Wiens, 2002; Vos et al, 2008). These actions should be accompanied by further guidance on connectivity. There is already evidence that Natura 2000 sites are facilitating species range shifts (Hiley et al, 2013; Thomas et al, 2012) and climate-driven abundance changes (Pavón-Jordán et al, 2015).

Improvements to implementation may be necessary to support adaptation to climate change through appropriate management of Natura 2000 sites (Thomas and Gillingham, 2015) (Smithers et al, 2008). To encourage appropriate adaptation measures, the Commission has published guidance on Natura 2000 management in relation to climate change (Alterra and Eurosite, 2013). Recommended adaptation measures for the Natura 2000 network include increasing protected area size, number and connectivity, as well as adaptive management, restoration and habitat creation. In a recent literature review (Van Teeffelen et al, 2014) identified some weaknesses in the implementation of Natura 2000 in response to climate change, including insufficient cross-national cooperation, insufficient expansion of Natura 2000 network to anticipate climate change, incomplete network connectivity, and insufficient allocation of funding support for habitat restoration for climate change adaptation. Cliquet (2014) argues that conservation objectives can be defined in qualitative – rather than quantitative – terms, in order to allow some flexibility to reflect effects due to climate change.

Natura 2000 management/conservation measures

Article 6(1) of the Habitats Directive requires Member States to establish conservation measures for Natura 2000 sites, including management plans where required. When setting the conservation objectives for a Natura 2000 sites and defining the conservation measures to be applied, it is necessary to consider whether and how economic activities are carried out inside and, where appropriate, outside Natura 2000 sites, or across multiple sites, thereby addressing key pressures to the EU protected habitats and species for which the site is designated (European Commission, 2012g)[262].

[262] The Commission note (European Commission, 2012g) underlines that conservation measures must correspond to the ecological requirements of habitats and species. Therefore, while they are generally established at the site level, they may also be designed at regional, national, cross-border, biogeographical or EU level, if this is more appropriate in the light of those ecological requirements. For the same reason, they may include areas that are not part of the Natura 2000 network, e.g. to foster the connectivity of the ecological network. The concept of 'ecological requirements' is not defined in the Directives, but, according to the Commission, can be understood as referring to 'all the ecological needs of abiotic and biotic factors necessary to ensure the favour-

While the Directives do not lay down strict requirements about the type of conservation measures to be adopted, the Commission has issued guidance in this regard, including a recommendation to establish site management plans[263]. As described in section 5.3, delays in the establishment of management plans is a central constraint on implementation, including the ability to address key pressures on sites. Many respondents to the evidence gathering questionnaire mentioned inadequate awareness-raising and collaboration with stakeholders as causing delays to the establishment and management of the Natura 2000 network.

The Commission has also published a set of Guidance documents that detail good practice in the establishment of conservation measures addressing pressures and threats in key sectors, including inland waterways, ports and estuaries, wind farms, farming, forestry, aquaculture and non-energy mineral extraction (see section 2.3 of the study). Despite the lack of proper distribution and awareness of these Guidance documents at a local level, a number of respondents pointed to its usefulness in providing win-win solutions, whereby economic activities in Natura 2000 sites can continue while the conservation status of habitats and species is unaffected or even improved (see section 5.3).

Conservation measures should also restore habitats and species within Natura 2000 sites affected by past pressures, such as the modification of natural conditions, and restore fragmented habitats. Some respondents to the evidence gathering questionnaire pointed out that the Directives have played a key role in stimulating restoration to deal with the legacy of habitat modifications that were carried out before the designation of Natura 2000 sites, for example, hydropower dams that cause fragmentation of river populations and habitats.

Article 4(4) of the Birds Directive provides that Member States should take appropriate steps to avoid, among other things, pollution or deterioration of habitats or any disturbances that may significantly affect relevant species. Article 6(2) of the Habitats Directive requires that any significant deterioration of habitats and disturbance of species present on Natura 2000 sites must be avoided[264][265]. These provisions clearly apply to any key problem, e.g. pollution. They also apply where disturbance originates from activities such as fishing, aquaculture, hunting and hunting-related activities, even where these activities are practised under the conditions and in the areas authorised by national laws and regulations (this is relevant for the second judgement criterion identified for the assessment of this question)[266]. While the provisions do not lay down any procedure or mechanism to ensure that Member State measures are appropriate (also relevant for that judgement criterion), evidence indicates that the Directives' provisions can encourage an effective framework for relevant actions, as illustrated in Box 83 in relation to nitrogen pollution.

Box 83 The Directives as catalysts for actions against nitrogen pollution: Examples from the Netherlands and Belgium

One of the main pollution problems is nitrogen deposition (largely as a result of intensive agricultural production) which affects the objectives related to Natura 2000 sites. The intensity of the problem and its impact on the Directives' objectives to ensure Favourable Conservation Status of the habitats and species through site designation and species protection measures, requires strategic approaches that go beyond Natura 2000 site management.

For example, the Netherlands have developed the Programmatic Approach to Nitrogen (PAN) which aims to reduce impacts on Natura 2000 sites, while at the same time enabling economic developments (such as increasing livestock numbers overall)[267]. Before the adoption of this plan,

able conservation status of the habitat types and species, including their relations with the environment (air, water, soil, vegetation, etc.)'. See Commission guidance on Article 6 (European Commission, 2000)

[263] http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm accessed 17.02.16

[264] Article 6(2), Habitats Directive refers to SACs. However, it is also applicable to SPAs through Article 7, Habitats Directive.

[265] Article 6(2), Habitats Directive.

[266] C-241/08 European Commission v French Republic [2010] ECR I-01697.

[267] Information provided during the mission to the Netherlands on April 2015 within the framework of the project task.

the granting of permits to certain activities was frozen, as they would result in increased Nitrate emissions. The PAN now provides some scope for increasing nitrate emissions in some areas.

Nitrate pollution applies to many countries and the Dutch strategic approach provides evidence of the Directives as a catalyst for the development of a solution to the pollution problem.

The Flanders region in Belgium has developed a nitrogen strategy to create a sustainable path to significant reduction in emissions, giving more certainty to economic sectors, including agriculture.

Source: Evidence gathering questionnaires from public authorities in the Netherlands and Belgium.

In conclusion, the Directives require Member States to establish conservation measures (including site management plans, where necessary) and to avoid deterioration of habitats and disturbance of species, which includes the obligation to establish measures to address key pressures and threats. The Directives do not provide details about the content, quality or timeliness of such measures given the nature of the Directives (defining the result to be achieved while leaving to the national authorities the choice of form and methods as per Article 288 TFEU). However, the Commission has developed guidance to support Member States in the correct implementation of these provisions. For this reason, having applied the judgement criteria, the Directives can be considered to apply to relevant key problems, and provide appropriate procedures and mechanisms to ensure they are addressed. However, the full extent of the key problems faced by the habitats and species, as presented in the first section of this question, cannot be dealt with solely by the Directives. The Directives do not exist in isolation and other instruments and measures also affect specific key problems (whether positively or negatively).

The assessment of the impacts of plans and projects on Natura 2000 sites

Article 6(3) of the Habitats Directive requires that any plan or project likely to have a significant effect on a Natura 2000 site must undergo an Appropriate Assessment (AA) of its implications for the site and its conservation objectives[268]. Authorities may only consent to the plan or project after ascertaining that it will not adversely affect the integrity of the site, and after having carried out - where appropriate - a public consultation. Where the assessment finds that the plan or project would adversely affect the site, Article 6(4) allows Member States to permit it in the absence of alternative solutions, if justified by imperative reasons of overriding public interest[269].

Article 6(3) and 6(4) of the Habitats Directive concern plans or projects which may affect Natura 2000 sites, whether they take place within or outside a site[270]. They do not distinguish between key problems, but, rather, their application is triggered by potential impacts on sites, regardless of the source of the impacts. Thus, these provisions can be regarded as applying to all key problems. Furthermore, as indicated under question S.1 (see section 5.1 of this study) they provide for the appropriate framework to implement Article 2(3) of the Habitats Directive, which requires that the measures taken pursuant to this Directive shall take account of economic, social and cultural requirements and regional and local characteristics.

(An example concerning transport and service infrastructure is provided in Box 84 below.)

[268] Article 6(3) and 6(4) Habitats Directive refer to SACs. However, they are also applicable to SPAs through Article 7 Habitats Directive.
[269] In this case, the Member State concerned must take compensatory measures to ensure that the overall coherence of the Natura 2000 network is protected, and inform the Commission thereof. If the site hosts a priority habitat or species, an opinion from the Commission must be sought before approving a plan or project for imperative reasons of overriding public interest which do not relate to human health, public safety or beneficial consequences of primary importance for the environment.
[270] C-98/03 Commission of the European Communities v Federal Republic of Germany [2006] ECR I-00053.

Box 84 The assessment of transportation and service infrastructure: Opportunities for project developers

Vikolainen et al (2014) report that the Dutch dredging industry is promoting the *Building with Nature* approach to designing water infrastructure in harmony with the environment[271]. The initial expectation was that the Directives would obstruct the implementation of that innovative approach. However, this research found at least two opportunities to include *Building with Nature* approaches into the procedure for the approval of plans and projects under the Habitats Directive. The first opportunity consists of introducing the elements of this approach in the pre-screening phase of a project, thereby helping to avoid significant adverse effects on Natura 2000 sites. The second opportunity concerns plans and projects that, although having a significant negative impact on sites, must nevertheless carried out for reasons of overriding public interest. In these cases, implementing the concept of *Building with Nature* can – according to the authors – help to create local stakeholder support as well as opportunities for area development. Based on a review of concrete projects, Vikolainen et al (2014) concluded that ''Natura 2000 requirements actually provided opportunities to satisfy *Building with Nature* principles in the case studied'. The authors thus recommended that, '[r]ather than attempting to modify the legislation,...a project developer could choose to proactively work with the legislation'. Vikolainen et al (2013) also provides corroborating evidence from a Belgian case study.

Source: Vikolainen et al(2014).

The mandatory procedures and mechanisms are detailed in the Directive, which can thus be considered to deal with the key problems insofar as they may affect Natura 2000 sites. Therefore, the second judgement criterion applied to answer this evaluation question is fulfilled.

Nevertheless, certain reservations have been raised in relation to the implementation of these provisions and the need for further guidance on the requirement for compensatory measures. The Directive provides for the permitting authorities to grant agreement to the plan or project conditional on compensatory measures having actually been planned, adopted or executed. However some implementation problems have occasionally been raised, where Member States promised to take compensatory measures, but then failed to do so, or cases which failed to provide compensation for the full extent of the damage done by the proposed plan or project. With respect to the effectiveness of the Commission opinion, the Directive does not clarify the grounds on which the Commission must issue its opinion, not it is explicitly required to make the opinion public in order to ensure transparency and help to clarify the considerations it believed relevant in balancing nature protection with public interest objectives other than those mentioned in Article 6(4)[272].

In conclusion, it can be considered that the Directives provide for procedures and mechanisms to deal with the potential pressures and threats, as they require Member States to assess the impacts of plans and projects. While recognising that the Directives cannot provide more detail in those provisions, given the nature of the Directives (defining the result to be achieved while leaving to the national authorities the choice of form and methods as per Article 288 TFEU), the requirements for the implementation of the Nature Directives nonetheless require further clarification.

The protection of species

The Birds Directive contains a number of Articles which provide the legal framework for the establishment of species protection systems and which address specific threats to species. Article 5 of the Birds Directive envisages a strict system of protection under which deliberate killing or capture must inter alia be prohibited. Article 7 allows certain species to be hunted, but requires Member States to regulate hunting in such a way that

[271] See http://www.pianc.org/workingwithnature.php accessed 17.02.16. Also see guidance from the Commission.
[272] A review of 11 opinions issued by the Commission concluded that 'there is hardly one which completely lives up to the requirements of Article 6(4) of the Habitats Directive and the Commission's own Guidance documents...[N]ot one of the positive Commission Opinions would, with the reasoning made, successfully survive scrutiny by the Court of Justice.' See (Krämer, 2009)

it does not jeopardise conservation efforts. However, the Directive forbids hunting during the rearing season and the various phases of reproduction, as well as for migratory species during their return to rearing grounds. Article 8 further prohibits particularly harmful forms of hunting (e.g. hunting through large-scale, non-selective means, or those otherwise capable of causing the local disappearance of a species). Derogations from these provisions are only permitted on limited grounds of general interest. Article 12 of the Habitats Directive prohibits, among other things, the deliberate capture or killing, the deliberate disturbance, the deliberate destruction or taking of eggs, and the deterioration or destruction of breeding sites and resting places. Article 15 of the Habitats Directive obliges Member States to prohibit the use of indiscriminate means for the capture or killing of certain species that are capable of causing the local disappearance of, or serious disturbance to, those species.

They therefore set out procedures and mechanisms that are clear and relevant to deal with the pressures associated with the use of living resources, including hunting (see Box 85), while leaving sufficient flexibility for Member States' derogations necessary in the public interest.

There is clear evidence that the Directives have changed hunting practices in most Member States, as described in question S.3. Some respondents noted that in some countries hunting is no longer considered to cause any conservation problems.

Box 85 Species protection and the case law of the European Court of Justice (CJEU): The example of hunting

Article 5(b) of the Birds Directive requires Member States to prohibit the deliberate destruction of, or damage to, nests and eggs, or removal of nests. This provision can thus address the key problem of hunting. Derogations are allowed on limited public interest grounds (e.g. public safety), provided no other satisfactory solution is available.

The Court has interpreted Article 7(4) of the Birds Directive - which prohibits hunting during rearing periods and the various stages of reproduction and dependency and, in the case of migratory species, during their return to their rearing grounds - as seeking to 'secure a complete system of protection in the periods during which the survival of wild birds is particularly under threat'[273]. This provision, too, may be addressed to hunting.

Article 9 of the Birds Directive allows Member States to derogate from prohibitions related to marketing and hunting on three strict conditions: (i) no other satisfactory solution exists; (ii) the derogation is based on one of the reasons listed in Article 9(1); (iii) the formal conditions of Article 9(2) are complied with. Local interests are not among the reasons that could justify derogations[274]. However, derogations are possible for species specified in national legislation which 'cause serious damage to crops and orchards or are responsible for pollution and noise in towns or certain regions'[275].

Source: own consultants development.

In addition, the provisions of the Birds Directive on species protection can address disturbances caused by human activities other than hunting. This is demonstrated by the *Caretta caretta* case, in which the CJEU found that, 'given the pressure and the erosion caused to the breeding beaches by the construction of access routes…and given the noise resulting from human activity...Usage of mopeds on the sand beach, the presence of pedalos and small boats in the sea and the presence of illegal buildings on the beach', Greece had breached the requirement to prevent the disturbance of a species of turtle[276].

[273] C-157/89 and C-38/99.
[274] C-247/85.
[275] C-247/85.

Box 86 C-103/00, Commission v. Greece – '*Caretta caretta* on Zakinthos'

The Loggerhead Sea Turtle (*Caretta caretta*) is a turtle that, in Greece, lays eggs between the end of May and the end of August in shallow holes on dry beach areas. The eggs hatch after two months, and baby turtles crawl onto the sand to reach the sea. They are very vulnerable and die in large numbers.

The bay of Laganas on Zakinthos is considered to be one of the most important breeding regions for the turtle in the Mediterranean. Greek authorities therefore proposed that the region should be classified as an SCI for the Natura 2000 network.

Despite this, the presence and use of mopeds, pedalos and small boats in the relevant area, as well as the presence of illegal buildings, was liable to disturb the species during the laying and incubation periods, the hatching of eggs, the baby turtles' migration to the sea, and to pose threats to the life and wellbeing of the turtles.

For these reasons, the Court held that Greece had failed to take, within the prescribed time-limit, all the requisite specific measures to prevent the deliberate disturbance of the Loggerhead Sea Turtle *Caretta caretta* during its breeding period and the deterioration or destruction of its breeding sites.

Source: own consultants development.

The Directives require active measures to improve the conservation status of species that are in unfavourable conservation status, including *inter alia* species action plans (SAPs). These SAPs have been developed at the national and EU level for a number of species (see question S.1). As a successful example, the implementation of the European species action plan for Dalmatian Pelican has resulted in dramatic increases in the breeding population in Greece (Barov and Derhé, 2011). On the other hand, a study on large carnivores (Trouwborst and Fleurke, 2014) states that cross-border cooperation 'is not yet taking place on any meaningful scale', and suggests that this may be linked to the 'lack of express obligations and accompanying mechanisms' in the Directives, as well as the focus on compliance at individual Member State level.

There is evidence to suggest that species protection can be successfully integrated into port operation (European Commission, 2011d; Snep and Ottburg, 2008; Vikolainen et al, 2013), and the design of the high capacity electricity grid (Scrase, 2015).

For these reasons, the second of the judgement criteria for this evaluation question is considered to be met: the Directives provide for the appropriate procedures and mechanisms to deal with the potential pressures and threats faced by the habitats and species in the EU.

Non-native species

Article 11 of the Birds Directive requires Member States to ensure that any introduction of non-native species does not prejudice local flora and fauna, and Member States are required to consult the Commission in this regard. Article 22(b) of the Habitats Directive requires Member States to ensure that the introduction into the wild of non-native species is regulated, in order not to prejudice habitats, wild flora and fauna, and they may even prohibit such introduction if they consider it necessary.

In application of the judgement criteria for this evaluation question, it appears that both of the above-described provisions are relevant for invasive alien species. However, no procedure or mechanism is set out in the Directive, thereby leaving it to other instruments to legislate on the matter.[277].

[277] Article 22(b), last sentence. The Habitats Directive, however, requires Member States to share information with the committee set out under Article 20 of the Directive.

Box 87 Access to funding from the LIFE programme

The LIFE programme provides dedicated funding for actions that contribute towards achieving the objectives of the Nature Directives. The programme is therefore an essential tool for addressing some of the key pressures facing the Natura 2000 network and EU protected habitats and species. Many of the actions that have been taken to address non-native species impacts on EU protected habitats and species and in the wider environment have been funded by the LIFE programme (see question S.2 for details).

- Restoration actions.
- Establishment of Natura 2000 sites and management plans, stakeholder consultations and awareness-raising.

7.1.3.2.3 Conclusions from the legal analysis

The Directives establish a framework to address the key problems faced by habitats and species. They establish specific objectives, such as the establishment of a coherent network of protected sites, adoption of management plans, AA of projects or activities' impacts, etc. which are further developed through effective operational objectives to avoid the negative effects (e.g. through permitting, prohibitions of activities, plans or projects). It can be concluded that, while the Directives have provisions enabling Member States to address the key problems to the habitats and species in the EU, those provisions do not generally aim to address *specific* key problems. Rather, the Directives, in line with the TFEU, set the biodiversity conservation goals to be achieved, leaving methods of implementation to the discretion of individual Member States (Article 288 TFEU).

However, the analysis carried out for these questions shows that the full extent of the key problems faced by the habitats and species presented in the first section of this question, cannot be dealt with by the Directives on their own. The Directives do not exist in isolation and required the integration with other policies and measures that have an impact on the specific key problems.

Table 27 provides an overview of the Directives' provisions which may apply to key problems and, in certain cases, contain procedures and mechanisms to deal with them. Where a provision applies to a key problem, but without setting out procedures and mechanisms to deal with it, the symbol '😐' is designated. In these cases, the success of the Directives will be largely determined by how ambitiously Member States interpret and apply the provisions. Where the Directives also include detailed procedures and mechanisms, the symbol '☺' is used. In these cases, Member States' discretion is more limited, and the Directives' provisions, if complied with, give sufficient assurance that conservation objectives will be achieved. A blank cell indicates that a specific provision might not apply directly to a key problem. The provisions of the Directives which are not reported in the table are not considered relevant for the key threats identified.

Table 27 Overview of the provisions of the Nature Directives addressing key problems

Key problems	Main provisions	Articles 3 and 9 Habitats Directive, Article 4 Birds Directive	Article 6(1) Habitats Directive	Article 6(3)-(4) Habitats Directive	Articles 5, 7, 8, 12 and 15 Birds Directive	Article 22(b) Habitats Directive Article 11 Birds Directive
	Subject-matter	Natura 2000 network	Management / protection measures	The assessment of the impacts of plans and projects on Natura 2000 sites	Protection of species	Non-native species
Agriculture-related pressures		😐	😐	☺		
Modification of natural conditions			😐	☺		
Forestry-related pressures and threats		😐		☺		
Natural processes (excluding catastrophes)				☺		
Pollution				☺		
Use of living resources other than agriculture and forestry (hunting, commercial fishing , collecting, etc., both legal and illegal)			😐	☺	☺	
Urbanisation, residential and commercial development		😐		☺		
Transportation and service infrastructure		😐		☺		
Mining and quarrying, energy production		😐		☺		
Invasive native and non-native species				☺		😐
Climate change		😐		☺		

7.1.4 Key findings

According to the judgement criteria listed at the beginning of this section, and the evidence reviewed to answer this question, the following key findings can be drawn:

Identification of key problems

The **most frequently reported pressures** on European protected habitats and species are **linked to agricultural land use**. This reflects the large proportion of bird species and other European protected species that depend at least partly on agricultural ecosystems, and the number of grassland habitats in Annex I, plus other habitats, that require extensive farming practices through grazing and/or cutting.

The second most frequently reported pressures relate to the **modification of natural conditions**, which result from a number of activities, such as agriculture (e.g. water abstraction for agricultural use), forestry (e.g. modification of natural fire dynamics), or navigation and flood protection (canalisation, weirs & dams, changed water flow, embankments, dredging, cutting off of wetlands and grasslands from river and tidal dynamics, coastal defences, etc.).

Forestry-related pressures include large-scale clear cutting, loss of deadwood and standing dead trees, and the loss of open areas in woodland due to abandonment of appropriate management methods. **Disturbances due to human activities** include outdoor recreational activities and associated developments, particularly in sparsely vegetated ecosystems in mountains and along coasts.

Terrestrial, freshwater and marine pollution were identified by Member States as a high-level pressure/threat on freshwater birds, other species and habitats, and on some wetland, forest, grassland and heath/scrub habitats. Modelling studies confirm that **nitrogen deposition from air pollution is a significant pressure** on wetlands, grasslands, dunes, forests, heath and scrub, and rocky habitats, particularly in North-Western and Central Europe.

Other frequent pressures relate to **hunting**, **fishing** and other activities using living resources, both legal and illegal.

Habitat loss (land take) and other pressures **from built developments and mining and quarrying, are moderately frequent overall**, with some areas of greater prevalence (e.g. in the Black Sea and Mediterranean regions). Modern after-mining and after-quarrying approaches may include land rehabilitation, thereby reducing the impact on biodiversity or, in some cases, leading to positive effects[278]. Transportation and service infrastructure is also associated with fragmentation and habitat loss, and with modifications of natural conditions. Renewable energy can present a high-level pressure on some bird species, but careful planning and design can significantly reduce impacts.

Invasive alien species are not frequently listed as a pressure, but are a particular threat to freshwater fish and amphibians.

Climate change is reported to be a fairly infrequent pressure, but **the impacts of climate change are expected to increase considerably** and to exacerbate other existing threats.

Whether the Directives address key problems

Legal analysis shows that the provisions of the Directives enable Member States to address the key problems faced by habitats and species. The general approach of the Directives is not problem-specific, i.e. their provisions do not, as a rule, target specific key problems, but, rather, they require Member States to take measures to avoid adverse effects on habitats and species (i.e. in achieving Favourable Conservation Status), irrespective of which particular key problem may be the cause.

The full extent of the key problems cannot, however, be addressed in isolation, and, while the Directives are capable of addressing key problems if well-implemented, which is often not the case, they should be supported by coherent policies in other sectors.

Analysis also shows that the Nature Directives' specific and operational objectives (i.e. the Natura 2000 network, the systems of species protection, the assessment of impacts on sites and species and the potential management of landscape features) form a framework capable of addressing all listed key problems. However, with some exceptions (e.g. the requirements for the assessment of plans and projects under Article 6(3) of the Habitats Directive), the Directives allow significant flexibility for Member States to choose the procedures and mechanisms deemed suitable to achieve the Directives' objectives. The Commission Guidance documents or the CJEU interpretation of the Directives provides for the necessary support or harmonisation, while respecting national discretion in implementation.

Particularly in relation to the threat of climate change, the literature indicates that the Directives provide an adequate framework to address climate change, provided they are more proactively implemented. Evidence shows that Natura 2000 sites are facilitating

[278] European Commission, *Non-energy mineral extraction and Natura 2000. EC Guidance on non-energy extractive activities in accordance with Natura 2000 requirements,* 2010

species range shifts, and appropriate management of sites may slow climate-related declines, and the literature therefore recommends increasing the size, number and connectivity of protected sites, as well as enhancing monitoring and cooperation.

The evidence gathering questionnaires support the conclusion that the Directives address the key problems faced by species and habitats.

A small minority of evidence gathering questionnaires stated that the Directives do not adequately address key problems, as their approach is too static to deal with the protection of dynamic habitats and species, natural ecosystem dynamics and climate change. No evidence was provided to substantiate this argument.

7.2 R.2 - Have the Directives been adapted to technical and scientific progress?

7.2.1 Interpretation and approach

The Nature Directives aim to contribute to the conservation of overall biodiversity in the EU, through targeted measures based on sound scientific evidence. The EU has expanded since the Directives came into force, and the pressures facing biodiversity have also changed, for example in terms of the growing threats from climate change, while actions taken under the Directives have had impacts on habitats and species. At the same time, scientific knowledge of the status of habitats and species has increased, with more known about the factors affecting them, their conservation management requirements and the effectiveness of conservation techniques. Consequently, views on the conservation needs of some species and habitats have changed.

To usefully answer the question of whether the Nature Directives have been adapted to technical and scientific progress, it is necessary to consider the adaptation itself, but also whether any amendments carried out have been sufficient to keep pace with the technical and scientific changes that have occurred, as well as the evolving needs and priorities of the Directives in terms of the achievement of their objectives. Therefore, the assessment of this question focused on the following two judgement criteria:

- Have the Nature Directives and their Annexes been adapted to technical and scientific progress?
- Should the Nature Directives and their Annexes have been further adapted to improve their ability to achieve their overall objectives?

7.2.2 Main sources of evidence

A number of studies have investigated issues relevant to this question, including the extent to which EU level and nationally threatened habitats and species are covered by the Directives, and the need for amendments to the Directives (Evans et al, 2013; Hochkirch et al, 2013a; Hochkirch et al, 2013b; Maes et al, 2013; Opermanis et al, 2008). These and other studies were considered in the ETC-BD literature review of the ecological effectiveness of the Natura 2000 network (McKenna et al, 2014). Since these studies have been published, a number of other IUCN Red Lists have been published or updated and this evaluation has, therefore, updated the comparisons.

Other studies are relevant to Annex IV of the Habitats Directive, i.e. the requirements for strict protection of species, e.g. in relation to some species that now have populations that are increasing and/or have Favourable Conservation Status.

A large proportion of stakeholders responded to this question in the evidence gathering questionnaire, with many citing the studies noted above, and others. Their responses also provided views on whether or not progress towards the achievement of the Directives would have been, and would continue to be, enhanced were the Directives' provisions and Annexes adapted. Although these were largely subjective opinions, they come from informed stakeholders with a range of relevant experience on complex policy implementation issues that cannot be readily analysed objectively.

7.2.3 Analysis of the question according to available evidence

7.2.3.1 Procedures for amending the Annexes

The legal texts of the Directives have not been changed since they came into force, other than the codification of the original Birds Directive 79/409/EEC as Directive 2009/147/EC (as amended by the Standardised Reporting Directive 91/692/EEC). The provisions in the original Directive are unaffected by the codification.

Under Articles 15 and 16 of the Birds Directive, Annexes I to V can be updated in response to scientific and technical progress. This is done by the Commission, with the assistance of the Committee for Adaptation to Technical and Scientific Progress, now known as the Ornis Committee. The procedure for amending the Annexes of the Habitats Directive is less straightforward, as, in accordance with Article 19, any necessary adaptation of Annexes I, II, III, V and VI to technical and scientific progress shall be adopted by the Council acting by qualified majority on a proposal from the Commission. However, amendments of Annex IV shall be adopted by the Council acting unanimously on a proposal from the Commission.

The Lisbon Treaty introduces a formal differentiation between legislative acts and non-legislative acts, providing for different procedures for their adoption. Legislative acts are regulations, directives, decisions, recommendations and opinions, and non-legislative acts are delegated or implementing acts. The provisions of the Nature Directives described above show that the adoption of the decisions amending the Annexes of the Nature Directives does not follow a legislative procedure process. However, they do not comply with those defined by the Lisbon Treaty for the adoption of non-legislative acts, namely with the rules under Article 290 TFEU for delegated acts or under Article 291 TFEU for the implementing acts. The modification of those provisions is therefore necessary for EU law consistency in order to adapt the current procedures to the requirements of the Lisbon Treaty, under which the Directives' provisions shall explicitly state the type of non-legislative act that is required.

Article 15 of the Birds Directive refers to the Comitology procedure to adopt the amendments necessary for adapting Annexes I and V to technical and scientific progress, and that are considered non-essential elements of the Directive. The Comitology regulatory procedure with scrutiny requires the involvement of the Committee - composed of representatives of Member States and the Commission – in the adoption of the decision. The scrutiny is the procedural phase by which the European Parliament has a voice in the decision. The delegated act seems to be the most appropriate act to replace the current procedure used, in the event of the Annexes being updated, as it is defined as the non-legislative act to amend certain non-essential elements of the legislative act. The procedure in this case would require a proposal from the Commission, which would enter into force if no objection was expressed by the European Parliament or the Council within a set period of time. Article 19 of the Habitats Directive requires the intervention of the Council and, therefore, the procedure for the adoption of delegated acts seems also more appropriate in this case, if the changes could be considered 'non-essential elements of the Directive'. It would also provide the benefit of harmonising the procedures in both Directives when deciding to amend the Annexes, moving away from the current situation. Furthermore, these changes provide an opportunity to simplify the procedures and introduce a certain amount of flexibility for updating the Annexes. This answers the claim from several stakeholders holding that the procedures under the current provisions of the Directives make it difficult to update the Annexes.

7.2.3.2 Amendments that have taken place

The Annexes of both Directives have been expanded a number of times, primarily in response to countries acceding to the Union. Summaries of how the two Directives were amended to reflect the impact of successive enlargements are provided on the DG Environment website[279]. These updates were carried out through a process of consultation with Member States, submission of proposals, screening by experts followed by discussions in joint seminars, resubmission of proposals and agreement by other affected Member States (Evans et al, 2013). Proposals were also discussed in the Habitats Committee or Ornis Committee. During the 2004 and 2007 accession negotiations, candidate Member State proposals were assessed according to a number of guidelines, including no introduction of new taxonomic groups, no changes to habitats and species only occurring in the 15 existing Member States, and amendments that resulted in new obligations on existing Member States were subject to their approval (Evans et al, 2013). In addition, proposals should be based on sufficient information to allow assessment and implementation, and taxonomically disputed species or groups - together with apomictic species and hybrids - should be avoided, with preference given to species rather than other taxa, protection of habitat types rather than individual species, and for amendments to existing habitat definitions rather than adding very similar habitat types. Little information is available on how widely Member States in the 2004 and 2007 accessions consulted with scientific bodies, NGOs or other ministries, but most of them involved research institutions and experts, with limited participation by NGOs, other than a few exceptions (Evans et al, 2013).

The following amendments were made to the Birds Directive Annexes independently of the accession of new Member States. Corncrake was added to Annex I in 1987, and Great Cormorant subspecies (*Phalacrocorax carbo sinensis*) was deleted from Annex I of the Birds Directive in 1997, because its populations had increased considerably in Europe (European Commission, 1997).

Directive 94/24/EC added six new species to the original list of 48 species in Annex II/2 of the Birds Directive. This was in response to representations made by several Member States that wanted to extend hunting rights for game species, as well as to a number of species causing significant damage to agriculture (IEEP, 2011). It was argued that the species could not be dealt with satisfactorily through the derogation procedure provided for in Article 9 of the Directive. At the same time, the Directive also removed three species from the list of birds which may be hunted in Italy because of their similarity to the Slender-billed Curlew, a globally endangered species and therefore particularly vulnerable to accidental killing.

7.2.3.2.1 Updating of the species checklist under the Birds Directive

In preparation for the 2007-2012 reporting exercise, the Ornis Committee agreed an updated list of birds naturally occurring in the wild in the EU, taking into account recent enlargements and natural changes, as well as a clear indication of migratory species. This checklist clearly defines whether or not the bird species fall within the scope of Article 4(2) as a regularly occurring migratory bird species in the EU relevant for SPA designation[280].

[279] http://ec.europa.eu/environment/nature/legislation/enlargement/index_en.htm accessed 17.02.16
[280] Checklist for bird species at: http://bd.eionet.europa.eu/activities/Reporting/Article_12/reference_portal accessed 17.02.16

7.2.3.2.2 Revisions of taxonomic status under the Habitats Directive

The ETC-BD coordinated two rounds of consultations with Member States on taxonomic issues related to Habitats Directive species' in preparation for the 2007-2012 reporting exercise. A list of proposals were published for solutions to problematic taxa (ETC/BD, 2014), together with a checklist of accepted names and synonyms[281]. In addition, the EUNIS database is regularly updated with recognised synonyms. There are, however, some inconsistencies between the IUCN database of EU threat status and the EUNIS database.

7.2.3.3 Should the Nature Directives and their Annexes have been further adapted to improve their ability to achieve their overall objectives?

To assess this judgement criterion, it is necessary to identify and assess the arguments that have been put forward for revising the Directives and their Annexes. Although some studies have referred to the need to update the Annexes for particular reasons, no studies have identified and comprehensively assessed the arguments for and against the need for updates in addition to those that have already occurred. The analysis below firstly identifies the main arguments for and against updating the Directives and their Annexes on the basis of the stakeholder responses and of evidence from relevant studies.

It is important to note that the assessment focuses on whether the Directives and their Annexes have been sufficiently amended up to now, and not whether they should be updated further in the future.

7.2.3.3.1 Identification of arguments for and against updating the Directives and their Annexes

71 stakeholders provided relevant responses to question R.2 in the evidence gathering questionnaire. Many respondents, especially among the nature conservation NGOs, explicitly stated that, in their view, the Directives' principles and overall approach remain valid and appropriate. Fewer comments were received from other stakeholders on the principles and aims of the Directives, but none proposed any fundamental changes to the provisions in response to scientific and technical progress. A few did note that it is difficult to update the Annexes under the current provisions, especially those of the Habitats Directive, given the requirement for their endorsement by the Council. However, no stakeholders proposed specific changes to these legislative provisions (i.e. excluding the Annexes), although some proposals for regular updates of the Annexes, discussed below, would probably require this in practice.

Of the 71 relevant responses, 54% clearly advised that the Annexes should not be amended, 31% said that the Annexes should be amended, and 15% provided relevant observations but no clear opinion as to whether or not the Annexes should be updated. However, as indicated in Table 28, the views of the different stakeholder groups varied considerably (and combined results are not, therefore, presented).

[281] Checklist for species at: http://bd.eionet.europa.eu/activities/Reporting/Article_17/reference_portal accessed 17.02.16

Table 28 Stakeholder questionnaire responses relating to whether the Annexes should be updated

	Nature authority	Other authority	NGOs	Private Enterprise / industry
Number who gave a response relevant to question R.2	22	3	35	11
Number of responses that Annexes should be updated	13	2	2	5
% responses that Annexes should be updated	59%	67%	6%	45%
Number of responses that Annexes should not be updated	6	1	29	2
% of responses that Annexes should not be updated	27%	33%	83 %	18%
Number of responses that gave an ambiguous answer	3	0	4	4
% of responses that gave an ambiguous answer	14%	0%	11 %	36%

All but two of the 31 NGOs (35 responses in total) who expressed a clear opinion stated that the Annexes should not be amended. This included all responses from nature conservation NGOs. The two NGOs stating that the Annexes should be updated represented hunting organisations: the Swedish Hunters Association and the Federation of Associations for Hunting and Conservation of the EU (FACE). However, FACE indicated that it had little desire to open Annex II of the Birds Directive, and its proposed changes appeared to relate only to the Annexes of the Habitats Directive. Answers from national authorities (22) were more divided, with 59% stating that the Annexes should be updated, compared with 27% against. Only 11 responses were received from private enterprise / industry, of which only five gave a clear opinion. Of these 45% favoured amending the Directives while 18% did not. Three responses were received from other national public authorities, of which two stated that the Annexes should be updated, while one held the opposite view, however, but given the very low number of responses it is not possible to draw reliable conclusions on the views of this stakeholder group.

The responses to the evidence gathering questionnaire and the literature indicate that there are three main arguments for updating the Annexes (in addition to expansion of the EU): 1) to make technical revisions in relation to changes in species taxonomy and habitat classification systems etc.; 2) to add species and habitats to the Annexes (or to increase their priority status) to fill gaps in coverage or to reflect deterioration in their conservation status; 3) to remove species and habitats from the Annexes or decrease their protection level in response to improvements in their status. These arguments are discussed below and Table 29 presents the number of responses putting forward these reasons for amending the Annexes.

A variety of reasons were given for not updating the Annexes, and these were less easily categorised, with many related to, and countering, the arguments for updating. These are most usefully discussed in relation to some of the arguments for updating, and are summarised below.

Table 29 The reasons given by stakeholders in the evidence gathering questionnaire for updating the Annexes

	Nature authority	Other authority	NGOs	Private Enterprise / industry
Number who proposed amending the Annexes	13	3	2	5
Technical reasons (e.g. relating to changes in species taxonomy and habitat classification)	6	0	0	0
% Technical reasons	46%	0%	0%	0%

	Nature authority	Other authority	NGOs	Private Enterprise / industry
Changes in status of species and habitats	13	1	2	5
% Changes in status	100%	33%	100%	100%
Explicit mention of the need to add or upgrade species or habitats	6	0	0	0
% add or upgrade species or habitats	46%	0%	0%	0%
Explicit mention of the need to remove or downgrade species or habitats	10	1	2	4
% remove or downgrade species or habitats	77%	33%	100%	80%

Note: Some responses indicated that the changes should be made to take into account changes in the status of species in general, while others may also have indicated explicitly that this should be in relation to adding / upgrading, and/or removing / downgrading.

7.2.3.3.2 Arguments for updating the Annexes

Changes in status: amendments to remove or downgrade common habitats and species and those with a Favourable Conservation Status

The most frequent reason put forward for updating the Annexes of the Directives is to take into account changes in the status of habitats and species so that conservation resources can be focused on the highest priorities (Hochkirch et al, 2013a). Indeed, this was indicated by all but one of the 31% of respondents who clearly considered further amendments necessary (Table 29). Some stakeholders provided detailed responses from which it was possible to ascertain whether they favoured updates that remove/downgrade and/or add/upgrade species and habitats. The most frequent reason given for downgrading species protection (by national nature authorities that favoured this course of action) was in response to demonstrated or perceived changes in conservation status. This was the only reason for downgrading given by other stakeholder groups.

Several nature authorities suggested that it is important to update the Annexes to ensure that limited conservation resources are used efficiently by targeting conservation priorities. They also felt that conservation requirements for common species lead to frequent conflicts and high public and private economic burdens, such as with building developments or extractive industries that frequently encounter such species. For example, DEFRA in the UK consider this to be a problem with Great Crested Newts, whilst several representatives from the extractive industry noted the same concern with this and other common amphibians and reptiles elsewhere in Europe (see Section 6.4).

Some national and regional authorities (e.g. Wallonia, Belgium; Finland and Sweden) and two hunting organisations (FACE and the Swedish Association for Hunting and Wildlife Management) stated that species that have achieved Favourable Conservation Status – and especially those that have increasing populations - should have lower protection levels so that they can be controlled or hunted without the need for regulatory and administrative procedures to apply derogations.

This has been particularly called for with respect to large carnivores (particularly Wolf and Brown Bear), as these have increased considerably in recent years across much of their EU range (Kaczensky et al, 2013), such that medium or large populations are no longer declining (Chapron et al, 2014). Large carnivores can cause a range of social and economic conflicts, such as the killing of sheep, Reindeer and other livestock (Kaczensky et al, 2013). Most livestock losses to carnivores are from Wolves, with compensation costs in Europe estimated to be in excess of EUR 8m per year (Kaczensky et al, 2013). However, such public compensation costs are a small proportion of national authorities CAP budgets. The annual depredation of about 10 hunting dogs by Wolves, and perceived competition for game species, is also an important cause of a relatively low acceptance of Wolf populations in rural areas of Sweden (Darpö and Epstein, 2015; Kaczensky et al,

2013), and a probable driver of demands by hunting organisations to allow greater control of Wolves and their transfer from Annex IV to V. There is also evidence that the acceptance of Wolves is decreasing as their populations increase (Sanderström et al, 2015). Some stakeholders such as COPA – COGEGA state that human conflicts with large carnivores are increasingly significant and problematic, although no evidence was provided to support this assertion.

Some respondents to the evidence gathering questionnaire suggest that allowing carefully controlled sustainable hunting (by listing species on Annex V of the Habitats Directive or Annex II of the Birds Directive) might be the best way to manage populations of large carnivores and other species that cause problems, while also encouraging acceptance of their presence. For example, the Wildlife Agency of Finland gives the situation in Estonia, where the Eurasian Lynx is on Annex V (unlike in other EU countries), as a good example where a lynx management plan enables the management of population without the bureaucracy related to Articles 12 and 16. In their response, FACE refer to research from the FP7 HUNT study, that suggests that public attitudes to Brown Bears in Croatia was generally positive before accession to the EU, in part due to the trophy hunting of Brown Bears[282]. It was therefore suggested that attitudes would change after accession to the EU and the subsequent protection of Brown Bears. However, no evidence appears to be available to substantiate this theory.

Some stakeholders have also stated that increases in some bird populations that are ineligible for hunting (except under derogations) cause significant problems. For example, COPA-COGECA in Denmark and the Swedish Hunting Association, note that the Barnacle Goose population that winters in, or migrates through, Denmark and Sweden has increased considerably, leading to significant crop damage (Frank et al, 2015).

As noted above, species that give rise to human conflicts and other problems can be hunted/killed (i.e. where lethal control is appropriate) under derogations (see section 2.3). Under Article 9 of the Birds Directive, the derogations can be applied where there are issues of public health and safety, air safety, serious damage to crops, livestock, forests, fisheries and water, and for the protection of flora and fauna. Similar provisions apply under the Habitats Directive, in situations where there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the Favourable Conservation Status of the species population concerned. These provisions are used frequently by Member States to deal with conflicts and other problems, and have, for example, been used to deal with large carnivore conflicts and damage resulting from birds and other species.

Nature conservation NGOs expressed the view that changes to the Annexes are not necessarily required to deal with these issues, claiming that the use of derogations is more responsive to changes and national, regional and even local requirements, whereas the Annexes generally apply to the species (sub-species) across the EU as a whole (although there are exceptions). Some respondents have suggested that the Annexes could be more regionalised to take account of geographic variations in status etc., but this would clearly complicate the process of agreeing the Annexes in a consistent way to ensure an even EU playing field.

There are clear limits to the scope of using derogations to manage populations, as confirmed by the findings of the European Court of Justice (CJEU) concerning the Commission's infringement proceedings against Finland for authorising hunting of Wolves. Although the Court did not rule entirely in the Commission's favour, it did confirm that the derogation provisions in Article 16(1) must be interpreted strictly, and that national authorities must show that the necessary conditions were present in each individual case (Darpö and Epstein, 2015). As a result, some national authorities, industries and COPA-COGECA have stated that the use of derogations results in a high administrative burden, particularly when they are required for common species.

[282] http://fp7hunt.net/Portals/HUNT/Reports/Croatian-Slovenian%20Research%20Briefings.pdf accessed 17.02.16

Similarly, the Commission considered the use of derogations by Sweden to implement its management of the Wolf population to be illegal, instigating infringement proceedings in 2010. This arose because the Swedish authorities' licensed Wolf hunting, in order to cap Wolf numbers at no more than 210 individuals and exclude Wolves from the year-round reindeer herding region in northern Sweden. According to Darpö and Epstein (Darpö and Epstein, 2015) the legal justification for the hunting-based management of Wolves is that it is the only way to deal with social conflicts arising from their presence and to increase their acceptance in rural areas. However, in their view, the Swedish Wolf policy is in breach of the obligations under EU law to protect endangered species. Despite some dialogue with the Swedish authorities, the Commission sent a reasoned opinion in June 2015 requesting that Sweden amend its Wolf policy[283].

The reasons put forward for removing species from the Annexes, or downgrading their protection levels, are particularly controversial. This is because the majority of nature conservation NGO respondents (such as BirdLife Europe) make the case that species that have a Favourable Conservation Status may remain dependent on the conservation actions that have been taken to achieve that status. This does not mean that species should never be removed from the protective Annexes, but, rather, that there is a strong argument for applying the precautionary principle. Thus, a species should only be removed from an Annex, or downgraded, if its Favourable Conservation Status is certain (i.e. not a short-term fluctuation), and there is reasonable evidence that the factors that caused it to have an unfavourable status no longer apply, or are dealt with by other measures than those covered by the Nature Directives. They argue that this is particularly important for species that remain relatively scarce and vulnerable to impacts (e.g. as a result of their slow population growth rates), such as large carnivores. The review of the status of large carnivores concludes that their protection by the Nature Directives is one of the factors that has contributed to their recovery (Chapron et al, 2014).

Some stakeholders proposed that some species of large carnivore should be downgraded from Annex IV to V. While some provided evidence that the species in question have attained a Favourable Conservation Status, no information was provided on how the species would be adequately protected from the additional potential pressures that they could be subject to by downgrading, including sport hunting or killing in response to conflicts with economic interests. Evidence that this is a real risk comes from observations that illegal killing remains significant in some populations, including in Sweden, where almost half of Wolf mortality is estimated to result from poaching (Liberg et al, 2012).

A further argument put forward by some respondents against downgrading the large carnivores from Annex IV to V is that methods other than hunting / lethal control can often be used to avoid or reduce human–carnivore conflicts to acceptable levels (Boitani et al, 2015; Kaczensky et al, 2013; Linnell et al, 2015). Indeed, Chapron et al (2014) note that a variety of local cultural and regulatory practices make the co-existence of large carnivores and people possible. These include traditional livestock protection measures, such as sheepherding, the use of livestock-guarding dogs, and corrals at night, and investing in new techniques such as electric fences.

The European Commission have recognised that there are concerns about human and large carnivore conflicts and have undertaken studies, stakeholder consultations and established an EU Platform on Co-existence between People and Large Carnivores[284]. The platform aims 'To promote ways and means to minimise, and wherever possible find solutions to, conflicts between human interests and the presence of large carnivore species, by exchanging knowledge and by working together in an open-ended, constructive and mutually respectful way'.

[283] http://europa.eu/rapid/press-release_IP-11-732_en.htm accessed 17.02.16
[284] http://ec.europa.eu/environment/nature/conservation/species/carnivores/coexistence_platform.htm accessed 17.02.16

Changes in status: amendments to add habitat and threatened species to the Annexes or change priority status

Of the 13 respondents that believe the Annexes should be updated, six (43%), all of whom are national authorities (Spain, Greece, Malta, the Netherlands, Sweden and the UK), stated that this should include the addition or upgrading of habitats and species. The primary reason is to address gaps in the coverage of species of conservation concern. Some gaps exist as a result of historic decisions made when the Habitats Directive's Annexes were drawn up, most notably, the dominance of vertebrates. However, there are also biases in the selection of invertebrates. For example, a study of the coverage of arthropods in Annex I and IV of the Habitats Directive found taxonomic, geographic, range, size and aesthetic biases in the selection of species (Cardoso, 2012). Consequently the species on the Annexes of the selected taxa (Lepidoptera, Coleoptera, Odonata and Orthoptera), are disproportionately from Northern or Central Europe, relatively widespread, of a large body size and attractive compared to species of other taxa from Southern and Mediterranean Europe, which are endemic or relatively small or inconspicuous. Cardoso also notes that the same biases found in the arthropod lists occur with other invertebrate taxa, such as molluscs (Bouchet et al, 1999). Bias also occurs, although probably to a lesser extent, with relatively well-known organisms such as plants (Lozano et al, 1996).

Cardoso (2012) concludes that as a result of selection biases, the Annexes are not representative of the most endangered, vulnerable, rare or endemic species. Also, knowledge of the invertebrate fauna of Europe has improved considerably since the Annexes of the Habitats Directive were drawn up. Therefore, 'even if more remains to be known, it would be possible with current knowledge to considerably update and reduce the bias in the Annexes'. They propose that the Annexes should be updated regularly, but also note that objective and transparent criteria need to be developed to select species for protection. They suggest that a possible approach would be that used by Martins et al (2010) to develop priority lists for the Azores, Madeira, Selvagens and Canary Islands.

Gaps in coverage have also arisen since the preparation of the Annexes, as a result of changes in the status of species, or improved knowledge of their status, such as following an IUCN Red List assessment. As a result of this and the initial biases in selection (see question S.2) while the Annexes include a large proportion of threatened vertebrate species, there are clear deficiencies in the coverage of invertebrates and plants although the threat status of the latter has not been fully evaluated.

Hochkirch et al, (2013a) propose that the Natura 2000 network should be based on 'adaptive Annexes rather than fixed species lists', produced through the following four-step process:

- 'Maximise knowledge on the existing biodiversity and its spatial distribution (inventory).
- Assess the threat status of these species using objective criteria (IUCN Red List assessments) in order to identify the species with the highest extinction risks, the regions with highest conservation value as well as the major threats.
- Use this information to prioritise the conservation of the species with the highest extinction risk and their habitats.
- Regularly renew this prioritisation process to revise the Annexes.'

Mismatches between the Annexes and Red List assessments (e.g. as revealed by van Swaay et al (van Swaay et al, 2011) with respect to butterflies), and the biases revealed by Cardoso (2012), created a situation where 'a major drawback of the current implementation of the Habitats Directive is the lack of regular updates of Annexes II and IV'. They propose that the Annexes should be updated at least annually on the basis of IUCN Red List criteria, as this will result in better coverage of highly threatened species. They also state that more flexible Annexes will increase the effectiveness of conservation ef-

forts by avoiding a long-term focus on non-threatened species. They recognise that this could result in some degazetting of Natura 2000 sites, which is possible under Article 9 of the Habitats Directive. However, this could be subject to misuse, so they suggest 'a minimum time span of 10 years with mandatory management and monitoring before degazetting'.

The six stakeholder questionnaire responses from nature authorities that proposed adding species to the Annexes to fill gaps, provided few details on how and when this should be done, and none referred to the proposals of Hochkirch et al, (2013a). However, SEPA (Sweden) suggested that there should be a system in place for updating the Annexes and that 'Any changes of course must be founded on robust scientific evidence'.

Many respondents acknowledged that some taxa are not well-represented and that there are inevitably gaps in coverage of IUCN Red Listed species on the Annexes. However, they argue that because there is a large number of species drawn from a variety of habitats and taxa groups in the Annexes, these have a substantial umbrella effect (see section 5.2 for further discussion). However, Cardoso (2012), (citing (Cabeza et al, 2008; Martín et al, 2010; Muñoz, 2007; Roth and Weber, 2008; Simberloff, 1998) states that protection of a few flagship species fails to provide broader biodiversity conservation achievements in some situations. This argument and comparison does not seem to be closely aligned with the situation where there are 204 taxa on Annex I of the Birds Directive, 233 habitats on Annex I of the Habitats Directive and more than 1,250 non-bird taxa on Annex II, rather than a few flagship species.

In their response to the evidence gathering questionnaire, IUCN points out that IUCN Red Lists simply estimate the relative extinction risk faced by species. They are not, therefore, an appropriate single system for setting conservation priorities, as other information needs to be taken into account. Consequently, IUCN believe it inappropriate to automatically include Red Listed species in legislation (e.g. in lists such as the Annexes) without considering the underlying cause of the threat and other relevant factors (IUCN, 2011).

As discussed in section 5.2 in relation to the Directives' contribution to conserving biodiversity overall, evidence shows that the Natura 2000 network contains the majority of the most diverse and species-rich habitats. While it is difficult to quantify the umbrella effect that results from this (i.e. the effectiveness of conserving biodiversity as a whole through the conservation of the selected suite of species) there are numerous examples of wider benefits of site protection and management that go beyond the target species (see section 5.2). Studies reviewed in section 5.2 and Annex 3 indicate that the umbrella effect is significant for vertebrates. Few quantitative studies have been carried out of the umbrella effect on other species, but those that do exist indicate that it is at least significant for butterflies.

Member States and others can also take steps to address the conservation needs of threatened species without adding then to the EU level Annexes of the Directives. Indeed, many threatened species that are not currently on the Annexes are likely to be national endemics, or have small ranges, or occur in the EU on the edge of their range. For such species, it would be entirely appropriate for their conservation requirements to be dealt with by national strategies and measures rather than through EU level listing on the Annexes of the Nature Directives. Furthermore, some respondents note that LIFE nature funding is now available for all Red Listed species, so there is no longer any benefit to being listed on the Annexes in this respect.

Several of the BirdLife International respondents stated that the conservation NGOs stand ready to cooperate on other measures for habitats and species to:

- 'Develop targeted EU wide or multi-country action plans for any taxa that require particular extra attention (e.g. freshwater molluscs, other invertebrates), including specific conservation projects, additional hunting restrictions, additional protected areas and monitoring efforts above the level required by the Nature Directives.
- Mobilise targeted funding for threatened species conservation*:* the EU LIFE Programme allows funding for Red List species not covered by the Nature

Directives' Annexes. Member States are free to allocate additional resources to these species (or habitats).

- Maximise co-benefits with the WFD, MSFD, air quality legislation and other environmental legislation for Red Listed species. Improving the ecological status of all waters, as required under the WFD, would for example yield high benefits to all freshwater biodiversity including potentially endangered mussels and macro-invertebrates.
- Make use of measures under Target 2-5 of the EU's Biodiversity Strategy, e.g. establishment of Green infrastructure and ecosystem restoration, integrate biodiversity concerns into agriculture, forestry and fisheries policy and tackle invasive alien species.'

Amendments in relation to technical changes in species taxonomy and habitat classification systems etc.

Many of the responses noted that some problems arise from taxonomic changesn causing uncertainty about the legal status of species and how they should be treated.

- **Taxa that are no longer protected:** The taxon *Unio crassus* originally listed in Annexes II and IV has been revised into the taxa *Unio tumidiformis* with reference to the populations in Europe outside the Iberian peninsula and *Unio pictorum* for the populations in the Iberian Peninsula. *Unio tumidiformis* is considered to be covered by the Annexes, but *Unio pictorum* is not, as the taxonomy of Iberian *Unio* was already controversial when the Annexes were drafted (ETC/BD, 2014).
- **Taxa with unclear coverage:** The species *Carabus variolosus* was listed on Annexes II and IV following a proposal by Hungary and the Czech Republic, with reference to the populations in these countries now recognised as *Carabus variolosus variolosus* (ETC/BD, 2014). The status of *Carabus variolosus nodulosus* in Central and Southern Europe is more ambiguous, and some authors consider it to be a distinct species, which would exclude it from legal protection under the Annexes (Müller-Kroehling, 2013). However, Slovenia and Austria have designated Natura 2000 sites for the taxon. The European Carabiologist's Meeting (ECM) issued a statement in 2007 calling for the inclusion of ssp. *nodulosus* in the interpretation of Annex species *Carabus variolosus* (Müller-Kroehling, 2013), and the ETC-BD have followed this recommendation in the checklist for Article 17 reporting (ETC/BD, 2014).
- **Invalid taxa:** *Discus defloratus* was considered to be a snail endemic to Madeira but the validity of the taxon was contested at the time of drafting of the Annexes and the specimen has now been confirmed as an erroneous identification of the common species *Trochulus* (*Trichia*) *striolata*, which is not protected by the Habitats Directive. *Centaurium rigualii* is no longer recognised as a Spanish endemism but as a local form of *Centaurium quadrifolium barrelieri*, which is not covered by the Directives. The ETC-BD have not retained these species in the Article 17 reporting checklist (ETC/BD, 2014).
- **Taxa queried in one Member State but not in others:** *Myotis blythii* is regarded in Austria (Spitzenberger, 2001) and by some taxonomists as *Myotis oxygnathus* in Europe, whilst *Myotis blythii* should only refer to the populations in Asia. However, the IUCN SSC Chiroptera Specialist Group has not yet justified the specific separation of *M. blythii* and *M. oxygnathus* (IUCN, 2015). The separation of the taxon *Myotis punicus* from *Myotis blythii* has, however, been recognised in the Habitats Directive checklist.
- **Taxa revised to cover populations rather than species/subspecies:** *Rhynchosinapis erucastrum* ssp. *cintrana* was described as an endemic of the Sintra mountains in western Portugal when it was listed in the Annexes, but is now recognised as a population of the more widespread taxon *Coincya monensis* spp. *cheiranthos* (ETC/BD, 2014). Portugal reported for 2007-2012 under the

original name, but has designated its Natura 2000 sites for the synonym *Coincya cintrana*. The Canary Islands endemic *Euphorbia lambii* is now regarded as a synonym of *Euphorbia bourgeana* (ETC/BD, 2014). Spain was asked to report on the status of the La Gomera island populations previously regarded as *Euphorbia lambii*, but not on the *Euphorbia bourgeana* populations on La Tenerife island.

In order to take account of such taxonomic issues, the ETC-BD has developed a species checklist with synonyms, updating the EUNIS database accordingly. Following a precautionary approach, the ETC-BD has recommended the application of the reporting obligations to taxa that have changed their taxonomic status, unless there is a clear consensus that the taxon does not correspond to the criteria that justified its original listing. For example, plant populations originally defined as species or subspecies in the Annexes have now been found to be part of more widespread taxa, but are still regarded as being covered by the reporting obligations.

Uncertainties over the legal status of species could affect the legal protection status of some taxa. This is because the ETC/-D does not have the competence to make any statements about the legal status of taxa listed in the Directives. It clearly states that the species checklist and associated recommendations give practical guidance to Member States with regard to the 2007-2012 Article 17 reporting exercise, and do not provide legally binding definitions (ETC/BD, 2014).

Some national nature authorities raised problems with the habitat classification system used in Annex I of the Habitats Directive and the related Interpretation Manual [ref]. For example, the Ministry of Environmental and Nature Protection in Croatia states that 'new Member States are being encouraged to interpret their specificities in a way to fit into descriptions of existing habitat types according to the Interpretation Manual, rather than to list new habitat types on Annex I of the Habitats Directive. They believe that this leads to problems when defining adequate conservation objectives and management practices for certain habitat types, including 1160 Large shallow inlets and bays (described from German), 3180* Turloghs (described from Ireland), 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. (described from the Boreal region) or 3170* Mediterranean ponds (the only corresponding category is from the Azores).

Several Member States have also noted that the classification of marine habitats in Annex I uses very broad categories. For example, the Ministry of Reconstruction of Production, Environment and Energy in Greece states that the Annex I marine classification does not follow the existing scientific classifications, such as that used for benthic marine habitat types for the Mediterranean region of UNEP/MAP. This leads to difficulties in defining the habitat types and therefore in managing them. For example, they note that 'sandbanks are different units in the Baltic and in the Mediterranean and can't be treated the same way'.

46% of the national authority stakeholders who stated that the Annexes should be updated, indicated that one reason would be to address changes in species taxonomy and habitat classification systems (Table 29). However, the majority of those that proposed updates did so for other reasons as well, with some noting that checklists and the Directives' flexibility were sufficient to deal with such problems.

No evidence was provided by any stakeholders of major implementation problems arising from taxonomy related issues.

7.2.3.3.3 Other considerations on updating the annexes

The implementation of international conventions

Some inconsistencies between the lists of species in the Annexes of the Directives and those in the appendices of some international agreements (e.g. Bern Convention) have been identified (see section 8.9).

The International Conventions are part of the EU law from their ratification, requiring the parties to implement them without the need for their transposition. However, their provisions need to be properly applied. The inconsistencies between the lists of species have led to the non-designation of Natura 2000 sites for some species missing from the Annexes of the Nature Directives. The EU may comply with the Convention provisions by ensuring its implementation and therefore the designation of Natura 2000 sites for those species that are in the appendices of the International Convention and not in the Annexes of the Directives. Therefore, amending the Annexes is not an absolute requirement to comply with International Conventions. However, consideration should be given to the fact that the inconsistencies might be more easily resolved if the content of the Annexes of the Nature Directives were aligned with those of the Convention, providing more legal certainty and enhancing the implementation of international obligations. For example, the EU aligns the Annexes of its Regulation 338/97 to those of CITES every time CITES the annexes of the Convention are amended.

The implementation of the Directives

The majority of respondents indicated that the Annexes have not required further updating in the past, nor do they require updating now (Table 28). A variety of reasons were given, but, for the nature conservation NGOs, the primary reason is that it would be counter-productive in terms of overall progress towards achieving the aims of the Nature Directives. While many recognise that improvements could be made to the Annexes they consider that to do so would create substantial risks, as there is no agreed evidence-based system or objective criteria in place for deciding the species and habitats which should be included in the Annexes. Both Cardoso (2012) and Hochkirch et al (2013) explicitly state that any amendments should be based on clear and objective criteria.

Most importantly, the nature conservation NGOs, along with other stakeholders, consider an amendment of the Annexes to be counter-productive because it would slow down the completion of the Natura 2000 network and the development of management plans and measures for the network, as well as other actions under the Directives. Several BirdLife International partners and FOE Europe, conclude that 'overall, it is clear that the negative impact of a change to the Annexes (e.g. implementation delays, legal uncertainty) far outweigh any potential benefits in terms of better coverage of all threatened species'. Butterfly Conservation Europe come to a similar conclusion, stating that 'It clearly isn't the priority right now; Better connectivity, more sustainable management of the network and improvements in ecosystem resilience and biodiversity outcomes to achieve the EU Biodiversity Strategy headline and specific targets are the pressing priorities for several years ahead.'

With respect to this point, many refer to the response by conservation scientists (Maes et al, 2013) to the call by Hochkirk et al to update the Annexes. Maes et al recognise that there are some gaps in the coverage of threatened species on the Annexes, and indeed one of the authors had previously pointed this out for butterflies (van Swaay et al, 2011). However, they state that 'The priority now should be to fund and implement the necessary management measures to achieve Favourable Conservation Status across the 18% of EU terrestrial area currently designated as Natura 2000 sites. This would benefit listed and other characteristic species of a wide range of habitats.' They also encourage individual countries to identify priorities for additional actions for threatened species that are not on the Annexes.

Several responses suggest that amending the Annexes now would lead to uncertainty (e.g. over possible additional Natura 2000 sites and changes in their boundaries and conservation objectives) leading to increasing costs for business and administrations. This point is mainly made by the nature NGOs, and is not shared by two of the four industry respondents who provided a clear view on whether or not the Annexes should be updated (Confederation of Finnish Industries and UEPG European Aggregates Association). However, BirdLife Europe point out that electricity grid operators, the cement industry and others have spoken out against changes to the Nature Directives including the Annexes, as this would threaten planning certainty for their operations (CEMBUREAU and Birdlife

International, 2014; RGI, 2014). Indeed, the other two industry respondents who gave a clear opinion on whether or not the Annexes should be updated, do not support amendments (i.e. RGI and Danubia Invest a.s.). RGI notes that 'risks include delays to and uncertainty around implementation (diverting effort and resources away from much-needed full implementation and placing a burden of uncertainty on business). While there are potential arguments for review of the Annexes, in our view the costs of doing so would not justify the benefits.'

Given the biodiversity concerned, and the economic risks and potential counter-productive impacts on progress towards the objectives of the Directives, some stakeholders (such as the World Wide Fund for Nature (WWF) EPO) note that any proposal to change the Annexes should be subject to a careful impact assessment of the likely economic, social and environmental impacts of potential amendments (as inferred from the Commission's Impact Assessment Guidelines (SEC(2009) 92)). Natuurpunt vzw, Natagora in Belgium note that 'any Annex change must support and not weaken the overarching strategic objectives of the Directives', adding that, 'The decision whether an update of the Annexes is appropriate should therefore be guided by a thorough analysis of risks and benefits of such an update for all biodiversity collectively, and not only for individual species or habitats. These risks include delays to and uncertainty around implementation (diverting effort and resources away from much-needed full implementation and placing a burden of uncertainty on business).'

7.2.3.3.4 Conclusion

There was a general consensus among the respondents to the evidence gathering questionnaire, that the Directives' principles and overall approach remain valid and appropriate, with no stakeholders proposing fundamental changes to any provisions in response to scientific and technical progress.

Three main potential reasons were given in support of further updating the Annexes of the Directives: 1) adjusting the Annexes in relation to species that have an improved conservation status (through real changes or better knowledge); 2) adding threatened species and habitats that are not on the Annexes in order to fill gaps in coverage; and 3) adjusting the Annexes in relation to technical issues such as changes in species taxonomy. Of these, the case for removing species or downgrading protection status is especially controversial, as many species are likely to be dependent on ongoing conservation and protection, and therefore a precautionary approach would be appropriate for them. The extent to which there is a real need to expand the Annexes and update them according to technical developments is uncertain, but it seems likely that conservation benefits would be modest at best, given the umbrella effect of the Directives. Issues concerning outdated taxonomy and other technical issues have been addressed through advice from the ETC/BD and are no longer a significant barrier to the efficient implementation of the Directives.

The inconsistencies between the lists of species in the Annexes of the Nature Directives and those in the appendices of some international agreements (e.g. Bern Convention) could be resolved without amending the Annexes of the Nature Directives. However, they might be more easily resolved if the Annexes of the Nature Directives were aligned with those of the Convention, providing more legal certainty for the implementation of international obligations.

Overall, the benefits of updating would likely be outweighed by the delays and uncertainty that such an update would cause, including legal uncertainty and additional costs and burdens for authorities and business. The balance of evidence therefore suggests that updates would be currently counter-productive in nature conservation and economic terms.

There is also a strong case for taking a cautious approach to any future amendments to the Annexes and ensuring that any proposals are subject to a full and comprehensive impact assessment.

It needs to be noted that any decisions to amend the Annexes of the Directives would only be possible once the procedures established in the Nature Directives have adapted to those defined by the Lisbon Treaty for the adoption of non-legislative acts.

7.2.4 Key findings

- There was a general consensus among stakeholders that the Directives' principles and overall approach remain valid and appropriate, with no stakeholders proposing fundamental changes to any provisions of the Directives in response to scientific and technical progress.
- The Annexes to the Habitats and Birds Directives have been amended on several occasions in response to the accession of new Member States to the EU. To date, however, they have not been significantly updated with respect to new scientific information, technological advances or changes in the status of species.
- Some stakeholders noted that under the provisions of the Directives it is not easy to update the Annexes. The current procedures established in the Nature Directives need to be adapted to the requirements and procedures established by the Lisbon Treaty for the adoption of non-legislative acts. This adaptation required for EU law consistency, provides an opportunity to simplify the procedures for updating the Annexes.
- Although they have not been updated in response to monitoring results and IUCN Red List assessments, scientific studies show that the Annexes, for the most part, contain species and habitats of high conservation importance that continue to require conservation measures to restore them to Favourable Conservation Status (as confirmed by the recent EU conservation status assessments). Although some species now have a Favourable Conservation Status and increasing populations, this is often at least in part as a result of actions that continue to be necessary (e.g. strict protection). Some respondents to the evidence gathering questionnaire proposed that some species with a Favourable Conservation Status and increasing populations should be removed from the Annexes (or downgraded from Annex IV to V of the Habitats Directive) but it was not indicated how their Favourable Conservation Status would be assured with lower levels of protection. Nature conservation NGOs frequently stated that the precautionary principle should be followed in such situations.
- A comparison with the recently published IUCN Red List assessments shows that the Annexes cover almost all threatened vertebrate species, including the majority of threatened freshwater fish, where knowledge and taxonomy have increased significantly since the Annexes were drafted. The Habitats Directive Annexes have low coverage of threatened invertebrates (particularly with regard to Southern Europe and Macaronesia), and omit some species-rich groups almost entirely.
- However, scientific studies show that the European protected habitats and species targeted by the Directives, and their designated Natura 2000 sites, indirectly protect many threatened species that are included in the Annexes and other species (i.e. they have an umbrella effect, as described under question S.2). In addition, where necessary, Member States can undertake actions for threatened species that are not listed on the Annexes, for example through LIFE projects, as all Red Listed species are eligible for funding.
- While the Annexes do not use the most up-to-date taxonomy, nomenclature, or habitat classification systems, there is no evidence to suggest that this has caused significant problems, with many stakeholders pointing out that Member States have sufficient flexibility in the interpretation and implementation of the Directives to deal with such issues. The ETC-BD and Ornis Committee, in consultation with Member States, have also produced complete listings of the currently accepted taxa names and synonyms covered by the Annexes, together with guidance on taxonomically critical or uncertain taxa.

- Many national authorities, some scientists, and other stakeholders stated that the Annexes should be updated, primarily to reflect taxonomic changes, gaps in coverage of threatened species and changes in the status of species.
- In contrast, all nature conservation NGOs, some scientists and national authorities, considered it more important to implement the Directives as they are now, rather than to update the Annexes. Many believed that such an update would be counter-productive, especially regarding Annex I of the Birds Directives and Annexes I and II of the Habitats Directives, as it would slow the completion of the Natura 2000 network and the establishment of management plans and conservation measures. They, along with some national authorities and businesses, also believed that such an update would create uncertainty, bringing the possibility of new sites to be designated, boundaries changed and conservation objectives and management plans updated,- with associated costs and burdens for authorities and business.
- The inconsistencies between the lists of species in the Annexes of the Directives and those in the appendices of some international agreements (e.g. Bern Convention) do not necessarily require amendments to the Annexes of the Nature Directives although improve the legal certainty.
- Overall, it seems likely that conservation benefits of further updating the Annexes would be modest at best, given the umbrella effect of the Directives, and therefore they would probably be outweighed by the delays and uncertainty that such an update would cause. Updating the Annexes would also give rise to legal uncertainty and additional costs and burdens. The balance of evidence therefore suggests that updates would be currently counter-productive in nature conservation and economic terms.

7.3 R.3 - How relevant are the Directives to achieving sustainable development?

7.3.1 Interpretation and approach

Sustainable development means that 'the needs of the present generation should be met without compromising the ability of future generations to meet their needs' (WCED, 1987). It is typically considered to encompass three essential pillars: environmental, social and economic sustainability. Sustainable development is an overarching objective of the EU, enshrined in Article 11 of the Treating on the Functioning of the European Union (TFEU) and recognised in various EU documents including the Sustainable Development Strategy adopted in 2001 and subsequently renewed in 2006.

As indicated in the intervention logic (see section 2.3) the general objectives of the Nature Directives are focused on nature conservation. However, Under Article 2 of the Birds Directive, Member States must consider economic and recreational requirements when taking requisite measures to maintain populations of birds. Similarly, Article 2(3) of the Habitats Directive requires that measures shall take account of economic, social and cultural requirements and regional and local characteristics. Thus, both Directives have specific objectives that recognise the need to contribute to sustainable development. Indeed, the intention of the Habitats Directive to contribute to the general objective of sustainable development is explicitly noted in its recitals.

The relevance of the Nature Directives to sustainable development is therefore analysed in relation to the following three judgement criteria:

- There is a clear consensus on the objectives for sustainable development.
- Achievement of the Directives' objectives contribute to sustainable development.
- The Directives allow developments to take place that are not linked to biodiversity objectives, provided they are sustainable (and compatible with the Directives' objectives).

7.3.2 Main sources of evidence

Key policy documents used to judge the contribution of the Directives to sustainable development include the 2006 EU Renewed Sustainable Development Strategy, the Communications on 'A strategy for smart, sustainable and inclusive growth', 'A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy', the EU's seventh Environmental Action Plan, and the UNDP Sustainable Development Goals[285] [286] [287] [288] [289].

Although no studies have specifically examined the contribution of the Directives to sustainable development, this analysis has drawn on a number of relevant sources, including Commission funded studies on the benefits of Natura 2000 and on the permitting procedure in Article 6(3) of the Habitats Directive, as well as national studies such as the UK review of the Birds and Habitats Directives' implementation, responses to the evidence gathering questionnaire and online public consultation. Many of these sources - and the issues they describe - have already been discussed under previous questions. (See ques-

[285] Council of the European Union 2006. Renewed EU Sustainable Development Strategy, DOC 10917/06 26.06.2006.
[286] European Commission, 2010. Europe 2020: A strategy for smart, sustainable and inclusive growth. COM(2010) 2020 final, 3.3.2010.
[287] European Commission, 2011. Roadmap to a Resource Efficient Europe COM(2011) 571, 20.9.2011.
[288] European Parliament and Council 2013. Living well, within the limits of our planet. Decision 1386/2013/EU 20.11.2013
[289] https://sustainabledevelopment.un.org/sdgs accessed 17.02.16

tion Y.1 for discussion of the ecosystem services and related social and economic benefits (jobs, tourism), and question Y.5 for a discussion of sustainable growth of ports and renewables.) The text below, therefore, makes frequent reference to previous sections and their sources of evidence, rather than duplicating earlier discussions.

7.3.3 Analysis of the question according to available evidence

7.3.3.1 What are the sustainable development objectives of the EU?

Sustainable development has been an overarching objective of the EU since 1997, when it was included in the Treaty of Amsterdam. It is now enshrined in Article 11 of the TFEU, which states: 'Environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities, in particular with a view to promoting sustainable development'. There is a clear obligation for the EU institutions, therefore, to integrate environmental requirements into the structure and implementation of other EU policies.

Accordingly, sustainable development has been taken up to some degree in EU policies and their objectives, most explicitly in the Sustainable Development Strategy (SDS) adopted in 2001. This was renewed in 2006, and includes the 2005 Declaration on Guiding Principles for Sustainable Development adopted by the Council in June of that year (see Box 88)[290]. The 2006 SDS aims to 'identify and develop actions to enable the EU to achieve continuous improvement of quality of life both for current and for future generations, through the creation of sustainable communities able to manage and use resources efficiently and to tap the ecological and social innovation potential of the economy, ensuring prosperity, environmental protection and social cohesion'.

Its aims incorporate the three pillars of sustainable development, in addition to recognising the international dimension:

1. Environmental protection

- Safeguard the earth's capacity to support life in all its diversity, respect the limits of the planet's natural resources and ensure a high level of protection and improvement of the quality of the environment. Prevent and reduce environmental pollution, and promote sustainable consumption and production to break the link between economic growth and environmental degradation.

2. Social equity and cohesion

- Promote a democratic, socially inclusive, cohesive, healthy, safe and just society with respect for fundamental rights and cultural diversity that creates equal opportunities and combats discrimination in all its forms.

3. Economic prosperity

- Promote a prosperous, innovative, knowledge-rich, competitive and eco-efficient economy which provides high living standards and full and high-quality employment throughout the EU.

In response to worsening environmental trends the SDS identifies seven key challenges and associated targets and actions, including the conservation and management of natural resources, with the overall objective 'To improve management and avoid overexploi-

[290] European Commission 2005. Draft Declaration on Guiding Principles for Sustainable Development. Communication from the Commission to the Council and the European Parliament, COM(2005) 218 final 25.5.2005.

tation of natural resources, recognising the value of ecosystem services'. The targets relating to biodiversity are:

- Improving management and avoiding over-exploitation of renewable natural resources such as fisheries, biodiversity, water, air, soil and atmosphere, and restoring degraded marine ecosystems by 2015 in line with the Johannesburg Plan (2002), including achievement of the Maximum Yield in Fisheries by 2015.
- Halting the loss of biodiversity and contributing to a significant reduction in the worldwide rate of biodiversity loss by 2010.

Box 88 Guiding Principles for Sustainable Development in the 2006 Sustainable Development Strategy

Promotion and protection of fundamental rights
Place human beings at the centre of EU policies by promoting fundamental rights, combatting all forms of discrimination and contributing to the reduction of poverty and the elimination of social exclusion worldwide.

Solidarity within and between generations
Address the needs of current generations without compromising the ability of future generations to meet their needs in the EU and elsewhere.

Open and democratic society
Guarantee citizens' right of access to information and ensure access to justice. Develop adequate consultation and participatory channels for all interested parties and associations.

Involvement of citizens
Enhance the participation of citizens in decision-making. Promote education and public awareness of sustainable development. Inform citizens about their impact on the environment and their options for making more sustainable choices.

Involvement of businesses and social partners
Enhance social dialogue, corporate social responsibility and private-public partnerships to foster cooperation and common responsibilities in achieving sustainable consumption and production.

Policy coherence and governance
Promote coherence between all EU policies, as well as between local, regional, national and global actions, in order to enhance their contribution to sustainable development.

Policy integration
Promote integration of economic, social and environmental considerations so that they are coherent and mutually reinforce each other by making full use of instruments for better regulation, such as balanced impact assessment and stakeholder consultations.

Use best available knowledge
Ensure that policies are developed, assessed and implemented on the basis of the best available knowledge and that they are economically sound and cost-effective.

Precautionary principle
Where there is scientific uncertainty, implement evaluation procedures and take appropriate preventative action to avoid damage to human health or to the environment.

Make polluters pay
Ensure that prices reflect the real costs to society of consumption and production activities and that polluters pay for the damage they cause to human health and the environment.

In December 2009 the European Council confirmed that 'Sustainable development remains a fundamental objective of the European Union under the Lisbon Treaty', as emphasised in the Presidency's report on the 2009 review of the EU SDS[291]. It noted a number of unsustainable trends to be tackled, including the loss of biodiversity and natural resources.

In accordance with the EU's integration principle (Article 11 of the TFEU) the SDS objectives and principles are being applied to the Europe 2020 Strategy, which was launched in 2010 to create the conditions for smart, sustainable and inclusive growth. The SDS is also taken up in the seventh Environmental Action Programme (EAP), which sets out to guide EU environment policy to 2020[292].

7.3.3.2 Would achievement of the Directives' objectives contribute to sustainable development?

No studies were identified that directly address this question, and the analysis therefore relies to a large extent on the views of the stakeholders and the supporting evidence, if any, provided in their responses. As the evidence gathering questionnaire consisted of open questions it was not possible to reliably quantify the impact ascribed by stakeholders to the Directives on the EU's sustainable development goals. However, it was possible to establish whether or not each respondent considered the Directives to help or hinder sustainable development. It was also possible to identify, in some cases, the main reasons for considering the Directives to contribute to, or present a barrier to, sustainable development.

82 stakeholders from four stakeholder groups provided relevant responses to the question, as shown in Table 30. As the views differed considerably between the different groups, they have not been combined.

Table 30 Evidence gathering questionnaire responses to the contribution of the Directives to sustainable development

	Nature authorities	Other authorities	NGOs	Private Enterprise /Industry
Number of relevant responses to question	20	10	34	18
Responses stating that the Nature Directives contribute to sustainable development	16	4	31	5
%	80%	40%	91%	28%
Responses stating that the Nature Directives are a barrier to sustainable development	1	2	1	5
%	5%	20%	3%	28%
Responses stating that the Nature Directives have mixed impacts on sustainable development	2	2	1	2
%	10%	20%	3%	11%
Responses without a clear or relevant answer	1	2	1	6
%	5%	20%	3%	33%

[291] http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%2016818%202009%20INIT accessed 17.02.16
[292] DECISION No. 1386/2013/EU on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'.

The vast majority of NGOs consider the Directives to contribute to sustainable development (including all respondents from nature conservation NGOs). Other groups agreeing with this statement were most nature authorities, and 40% of other authorities (although the number of respondents was low), as well as 28% of respondents from private enterprise and industry.

Similar views were expressed by the majority of respondents to the online public consultation on the extent to which the Directives provide economic benefits (Q12) and social benefits (Q13). While a significant majority stated that they contribute to both (93% for each), there were substantial differences in opinion between the respondent groups (see question Y.1 for a more detailed discussion). As discussed in Section 4 of the methodology, the online public consultation was greatly influenced by campaigns and its results warrant cautious interpretation.

Of the 56 evidence gathering questionnaire respondents that indicated that the Directives contribute to sustainable development, many pointed to the positive impact of biodiversity conservation on the environmental pillar of sustainable development, and also the associated ecosystem service benefits that contribute to social and economic sustainability (Table 31). This view was particularly prevalent among the NGOs and nature authorities (77% and 69% respectively). In contrast, only 40% had this view amongst the private enterprise / industry stakeholders.

Table 31 Responses to whether or not the Directives contribute to sustainable development through biodiversity and ecosystem service benefits

	Nature authorities	Other authorities	NGOs	Private Enterprise/Industry
Responses stating that the Directives support sustainable development	16	4	31	5
Responses stating that the Nature Directives contribute to sustainable development through biodiversity and ecosystem service benefits	11	2	24	2
%	69%	50%	77%	40%

Many of the stakeholders pointed out that the Directives' contributions to sustainable development arise in the first instance because the conservation of biodiversity is a sustainable development objective in itself (as clearly indicated in the EU 2006 SD). Although the Directives do not explicitly refer to ecosystem services (as the term was not in common use then) they contribute to social and economic components of sustainability through their delivery of ecosystem services with respect to:

- Resource management (e.g. fisheries benefit from marine protected areas, the maintenance of habitat for game species, soil management).
- Climate change mitigation and adaptation.
- Health and social benefits (e.g. the protection of quality green space, with high aesthetic values).
- Provision of sites for recreation, education and research, with associated economic benefits from tourism, etc.

These views were supported by a number of examples (see summaries in Box 89 and Box 92 below), and studies (e.g. Gantioler et al, 2010; Snethlage et al, 2012; Tsiafouli et al, 2013) of the benefits of conserving and restoring biodiversity and associated ecosystem services. (See question Y.1 for a detailed discussion.) As described in the Y.1 analysis, there is strong evidence of the social and economic benefits of the Directives, linking them to sustainable development and the Europe 2020 Strategy. For example, 30,000

jobs are estimated to be supported by each EUR 1bn expenditure in Natura 2000 (compared to 3,000 to 6,000 FTE jobs per EUR 1bn expenditure of the current CAP and 16,800 FTE jobs per EUR 1bn of Cohesion Policy investment)(GHK, 2011). The full implementation of the Natura 2000 network, involving annual expenditure of EUR 5.8bn, would support 104,000 FTE jobs directly and 174,000 FTE jobs in total (including multiplier effects) in the EU (Jurado et al, 2012; Rayment et al, 2009).

The Y.1 analysis concluded that the benefits of the Directives include protecting habitats and species, safeguarding and enhancing the delivery of ecosystem services with related benefits to wellbeing, and benefits for local economies (including jobs and incomes in nature conservation and benefits to the tourism sector). These benefits are of substantial value and, at least in gross terms, they exceed their costs at all scales. However, with respect to the specific relevance of the Directives to sustainable development, the European Centre for Nature Conservation 2000 considers the contribution of Natura 2000 to local sustainable economic activity and livelihoods to be most evident in economically deprived areas where mainstream agricultural income is hampered by remoteness or absence of markets, poor soils and low productivity (Snethlage et al, 2012). In such places, innovative business models based on branding, niche products, rural / ecotourism, in combination with local history and cultural heritage, are often successfully implemented. However, the case for competitive models based on Natura 2000 in areas of high agricultural productivity is much more difficult, and, according to some members of the agricultural sector, impossible to make.

In conclusion, there is good documented evidence that the achievement of the Directives aims would contribute to sustainability, a view shared by the majority of respondents to the evidence gathering questionnaire. This is, firstly, because the conservation of biodiversity is a sustainable development objective in itself, but also because the Directives' nature conservation objectives support and enhance ecosystem services that contribute to resource management, health and wellbeing, sites for recreation, education and research, which contribute to the economic and social pillars of sustainable development.

There are also are numerous examples that show that the implementation of the Directives to date has made significant contributions to these components of sustainable development, although it is not possible to quantify their overall impact.

Box 89 Example of the contribution of biodiversity related land management actions to sustainable development in rural areas in Austria

In the programming period 2007-2013, Austria carried out 1,026 nature protection projects with total funding of EUR 75m under the measure 323a (Pinterits et al, 2014) p13). 25% of these projects, according to their applicants, made a contribution to improving agricultural revenues, e.g. by establishing landscape preservation associations or jointly developing certified products from nature parks or reserves of the biosphere (e.g. grass-fed cattle from the Biosphärenpark Wienerwald or the Biosphärenparksteige with products from the Lungau Region). Such products provide farmers with sustainable revenues.

In 90% of cases, the project promoters believe that their endeavour contributes to the advancement of knowledge and the development of competences in nature conservation matters. Through the projects, personnel are trained in specific areas (e.g. National Park Ranger Hohe Tauern), seminars are organised for municipalities (Biodiversity in your Community) and other task-specific training is also offered (e.g. nature watching). Projects for the protection and development of biotopes also have indirect effects, e.g. the revitalisation of particular areas creates new opportunities for external guides to organise nature tours, which can also be offered to schools (Pinterits et al, 2014).

The valuable areas are very important for the redistribution of funding in economically weak regions: the size of high-nature-value (HNV) farmland in Austria is - depending on the strictness of the delimitation criteria - between 288,000 ha (delimitation through stringent criteria) and 1.14 million ha (delimitation through more general criteria). These valuable areas include many EU protected habitats and species. They consist of extensively used meadows and pastures, especially species-rich grasslands (hay meadows and pastures used once or twice) and alpine meadows and high pastures. There are also extensively used agricultural crop lands, seldom

fertilised and on which little if no pesticide is used (Bartel et al, 2011).

HNV farmlands are located in economically weak regions, such as mountain areas or remote rural areas, i.e. where an economically profitable agriculture is difficult, given the unfavourable natural conditions. Such regions harbour forage grower farms and mixed agricultural holdings, yielding revenues close to minimum incomes. For these farms, nature conservation programmes play a particularly important role (Suske, 2014).

The supporting measures of the ÖPUL 'nature protection', 'mowing of steep hillsides', 'management of mountain meadows', as well as 'relinquishment of silage' are of greatest benefit to HNV farmland areas. The volume of aid provided by these measures between 1995 and 2013 amounted to approximately EUR 1.6bn (Schwaiger et al, 2014). Measures supporting environmental protection have thereby indirectly contributed to the support of regions exposed to economic difficulty.

Source: Austrian NGOs (World Wide Fund for Nature (WWF), Member Organisations of the Umweltdachverband (BirdLife Austria) and others).

Box 90 Example of the contribution of Natura 2000 to sustainable development in rural areas in the Czech Republic

Under the LIFE+ project in Lounské Středohoří (NAT/CZ/000363) traditional farming methods are renewed and new people are attracted to the region to graze sheep in Natura 2000 grasslands, bringing socio-economic benefits to the area.

Case 1: Residents in Šumava (SPA and SAC) have an income well above average
Thanks to nature protection and increased tourism, as well as jobs created by Natura 2000 itself, the average income of residents in the Šumava SPA/SAC is twice the respective district average, according to the Czech Statistical Office and Labour Office of the Czech Republic.

Case 2: Natura 2000 creates new workplaces in peripheral regions
Protected areas, including Natura 2000 sites, attract tourists and the Czech state is building a network of interpretation centres ('Dům přírody' – House of Nature), bringing work opportunities, particularly to remote areas with a traditionally low labour market. In all, eight such interpretation centres have been built or are under construction, in close co-operation with local stakeholders, creating several tens of jobs. The highest possible sustainability is secured by inviting local authorities (municipal, forest or others) to operate the facilities after opening[293].

Source: Zeleny Kruh, Czech Republic.

Box 91 Example of the contribution of Natura 2000 to sustainable development through tourism and recreation in Germany

Synergies can also apply in the areas of tourism and recreation. In this case, conflicting interests were identified early on and joint solutions developed, leading to positive impacts for sustainable tourism (for examples, refer to (BfN, 2010). Tourism, forestry and nature conservation representatives in some regions view the designation of Natura 2000 sites as an opportunity for tourism, by preserving a landscape perceived as aesthetically pleasing (Garbe et al, 2005) and enhancing its value through formal recognition. 40% of respondents anticipate financial benefits from the funding possibilities associated with Natura 2000 sites. Although many fear obstacles to further tourism development, and limitations on certain leisure activities, only a small proportion (16%) expect adverse effects on existing tourism. However, it should be noted that these synergies may at the expense of land users, such as the forestry sector.

Source: Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit, Germany.

[293] http://www.ochranaprirody.cz/prace-s-verejnosti-a-evvo/domy-prirody/ accessed 17.02.16

Box 92 The contributions of conservation measures for the Iberian Lynx to sustainable development through increased tourism in the Andújar reagion of Spain

Following the improvement in the Iberian Lynx population in Andújar, one company, in collaboration with WWF, has started to develop lynx sighting and photographic activities on private properties practicing lynx conservation actions.

- There is a reported 33% success rate in lynx sightings, bringing an estimated annual income of EUR 50.000-60.000 per estate.
- There is an estimated annual income from sighting activities (excluding photography) of up to EUR 20.000 per estate. (These are gross income estimations, before salaries, lodging, etc.)

Direct jobs have been generated by the LIFE project 'Recovery of Iberian Lynx in Andalucía' (2002-2006). 31 fixed-term contracts, with EUR 29,740 in wages and wage-related benefits for 486 SMEs. Estimates for LIFE Iberlince (2011-2016) suggested EUR 52,800 in wages, making it an important source of forestry and agrarian incomes in the region.

- There are no equivalent estimates for indirect job creation. However, given the amount of field work required (installation of rabbit warrens, fences, etc.), and also taking into account tourism activities related to lynx sighting, it is assumed that these would also be very high.

In addition, the lynx is an important tourist attraction, bringing many tourists to the two distribution areas of the species.

Source: SEO/BirdLife.

Box 93 The contributions of conservation measures in a forest area to sustainable development through increased tourism, Greece

Dadia (GR 1110002/SPA and GR1110005/SCI/SAC) is one of the most popular ecotourism destinations in Greece. Its unique forests are home to 36 of the 38 European birds of prey, and it is one of the few places in Europe where three of the four vulture species co-exist. Since 1993, when WWF Greece opened an information centre (3907/91/10-11/ACNAT – 1995), a complete ecotourism complex has been created, including a hostel, refreshment area, forest trails, and visitor infrastructure. Today, the entire ecotourism complex is managed by the Management Body of the Dadia-Lefkimi-Soufli Forest National Park. At its peak, more than 50,000 visitors from all over Greece and Europe visited the ecotourism complex per year. Ecotourism in Dadia has yielded considerable economic benefits to the local community and neighbouring areas, such as the creation of considerable job opportunities for local women and young people, and increased demand for local services.

Source: WWF Greece.

7.3.3.3 Do the measures in the Directives allow developments to take place that are not linked to biodiversity objectives if such developments are sustainable (i.e. they align with the Directives' objectives)?

As discussed in section 7.3.1, Member States must take into account economic and recreational requirements when taking requisite measures to maintain populations of birds (Article 2 of the Birds Directive). Similarly, Article 2(3) of the Habitats Directive requires that measures shall take account of economic, social and cultural requirements and regional and local characteristics. These requirements were referred to by many stakeholders, with several pointing out that the Directives have been designed to allow and facilitate sustainable development not linked to biodiversity objectives where this is compatible with the aims of the Directives. In particular, Natura 2000 is based on a wider con-

cept than maintaining nature reserves, and it allows for sustainable human activities that are compatible with the conservation objectives of the sites in question. The Directives do not apply rigid site protection with predetermined restrictions on activities, but, rather, they allow for the suitability of activities to be judged on a case-by-case basis.

Articles 6(3) and 6(4) of the Habitats Directive (which also apply to SPAs designated under the Birds Directive) are of key relevance to sustainable development. Article 6(3) requires potential impacts to be assessed, following which it may allow activities provided they do not have an adverse effect on the specific objectives of the site. Under Article 6(4), developments with adverse effects may also go ahead if there are imperative reasons of over-riding public interest, and no alternatives. At the same time, in accordance with the 'polluter pays' principle, the project promoter must compensate for any negative impacts on the coherence of the Natura 2000 network (e.g. through the restoration of habitats elsewhere). Consequently, the UK's Commission on Sustainable Development recognised that the Directives serve as a litmus test of sustainable development, as they do not prevent development, but, rather, ensure that it is undertaken in a way that is compatible with the protection of wildlife (Sustainable Development Commission, 2007).

WWF EPO also point out that IUCN recognises Natura 2000 as being a 'local experiment of sustainable development', because it 'gives local stakeholders the opportunity to experience the principle of sustainable development at a local scale: managing the natural area to maintain natural habitats and species, while also maintaining ecosystem services that provide benefits for the human population' (Ferdinandova, 2011). Natura 2000 has introduced a very different type of nature conservation to that of the traditional approach of regulation and prohibitions in an attempt to 'reconcile nature conservation with features of sustainable development' (Grodzinska-Jurczak and Cent, 2011). It is considered to be of practical importance for the implementation of a sustainable development strategy, 'mainly due to its firm legal basis (including the possibility of national decisions to be revised by the European Commission), the scale of this undertaking and the principles of the nature conservation system itself' (Grodzinska-Jurczak and Cent, 2011).

Of the 56 (68%) stakeholder responses that consider the Directives to contribute to sustainable development, 46% (26) pointed to the possibility for developments that do not contribute to environmental objectives, but which contribute to social and economic goals, provided these do not conflict with the aims of the Directives. However, as noted above, 11% of stakeholders (primarily from private industry and business) stated that the Directives do not contribute to sustainable development, as there are issues with such development in practice. Views across stakeholder types were fairly consistent, although the number of respondents was very low for other authorities and private enterprise / industry.

Table 32 The number of respondents that said the Directives permit sustainable development

	Nature authorities	Other authorities	NGOs	Private Enterprise/Industry
Responses stating that the Directives support sustainable development	16	4	31	5
Responses stating that the Nature Directives allow other sustainable developments	8	1	15	2
%	50%	25%	48%	40%

An issue raised by several stakeholders (e.g. Euromines, FACE, Copa-Cogeca, CEPF), was that the Directives do not aim to balance environmental, economic and social interests, but instead give primacy to the Directives' objectives. The Federation of German Industry

noted that, in accordance with European Court of Justice (CJEU) jurisprudence, only nature protection criteria may be taken into account when Natura 2000 areas are selected, but not economic and social interests. In addition, the assessment of the acceptability of impacts on Natura 2000 sites under Article 6(3) of the Habitats Directive is entirely based on whether or not the Directive's environmental aims will be met. Economic interests are only considered at the secondary level of derogation under Article 6(4).

The Ministry of Economic Affairs in the Netherlands made similar points, citing a study that found that current CJEU rulings confirm one-sided testing on narrow and pre-defined conservation objectives that relate to the integrity of the site (Kistenkas, 2013; Kistenkas, 2014). Thus, they argue, it does not balance social, economic and environmental benefits in relation to the three pillars of sustainable development, but, rather, privileges environmental criteria. They also state that the test does not consider environmental benefits in the round, but only impacts on species and habitats listed in the Directives and for which the Natura 2000 site in question is designated.

However, there is a scientific rationale for this approach: if decisions on the acceptability of biodiversity impacts are based on a balancing of interests, then biodiversity will almost certainly continue to decline (as ecological requirements themselves are fixed and cannot be subject to compromise). For example, if a critical pollution threshold is crossed, a habitat may be destroyed. Reducing the degree to which the threshold is crossed will not affect the outcome. As the EU's overall biodiversity objective is to halt the loss of biodiversity then it follows that incremental losses need to be avoided or compensated (if they cannot be avoided according to the mitigation hierarchy) to achieve no net loss of biodiversity. As the species and habitats that are listed in the annexes of the Directives are of Community importance, it is appropriate for these to be given a high level of protection under Article 6(3). Nevertheless, if economic and social considerations are sufficiently significant, then the development can go ahead under Article 6(4) if there are no alternatives. Compensation measures are then required to ensure that the integrity of the network is retained.

The Appropriate Assessment (AA) should be viewed as part of a process, in which the project proponents consider the options for a development and, in so doing, avoid environmental impacts if at all possible. Thus, the rationale should be to seek win-wins rather than to balance impacts. This is often possible, as evidence from a Commission study (Sundseth and Roth, 2013) and other sources shows that, on the whole, a very small proportion of developments actually require AAs and, in most cases, the proposals are allowed to proceed. (see section 6.1 for more discussion.)

Where the Directives' measures have blocked sustainable development, this has often been due to implementation issues in the Member States, as described in the Commission's study of AAs (see section 8).There is also evidence that, over time, many of these problems are dealt with by increased experience, new technologies and better availability of biodiversity data, which can help to avoid impacts early in the planning cycle. For example, problems have occurred with the presence of some common strictly protected species (such as Great Crested Newts) occurring within development sites, which has led to disproportionate burdens and costs (see Box 36). However, a new approach to dealing with development impacts on Great Crested Newts is now being trialled in England, appearing to result in swifter decisions on developments, lower mitigation and compensation costs for developers, and potentially better strategic conservation outcomes (see Box 94).

Some stakeholders noted that the Directives are, in fact, stimulating new and better approaches to development planning and decision-making. For example, MEPA/WBRU in Malta note that because the provisions of the Nature Directives are evaluated according to site-specific environmental considerations (as well as the purpose and nature of the proposals), this has resulted in innovation in design, with alternative solutions sought for more environmentally-sound projects. Gradually, this is leading to a more environmentally conscious cohort of architects and planners, encouraging applicants to consider environment-friendly measures and solutions to avoid or suitably mitigate the impacts of their projects on Natura 2000 sites.

The Renewables Grid Initiative (RGI) states that complying with the Directives also has knock-on benefits for sustainability. They give the example of the upcoming major German grid projects managed by the licensing authority, the Bundesnetzagentur, in a new approval scheme, Bundesfachplanung. Here, the Directives are taken into account by the authorities at a very early stage of the planning[294]. The first step identifies routes of new power lines, with considerations of the Natura 2000 network forming part of the underpinning data. This is, however, just one of the sustainable development objectives built into this approach.

According to WWF Poland, the Nature Directives have led to the introduction of strategic planning, which is helping to facilitate sustainable development and better designed projects with lower environmental impacts (see Box 94).

Box 94 The benefits of strategic planning and a strategic approach to the Via Baltica in Poland.

In 2006 the Rospuda River Valley (Upper Rospuda Valley, PLH 200022) was threatened by planned construction of the Augustów bypass expressway, which was to cut across the protected wilderness area and Natura 2000 sites in the valley (Fundacji EFORT, 2012). The Polish daily newspaper, Wyborcza, launched an online petition, signed by over 140,000 people, asking the Polish President to respect the law, preserve the Rospuda Valley and direct the Augustów bypass via a different route. After an intense campaign of protests in Poland and the EU, the plans were changed and the highway re-routed to completely avoid the SPAs. Following the Rospuda case, Polish NGOs continued the campaign to halt construction of the expressway through other protected sites: the Knyszyn Primeval Forest, the Biebrza Marshes and the Augustów Primeval Forest. Developers initially ignored SEAs that had recommended viable, less damaging alternatives for the Via Baltica Expressway. However, since the end of 2009, the Polish government has agreed to re-route the whole controversial section of the expressway, effectively sparing these critical natural areas from destruction. WWF suggest that the experience with Via Baltica will help regional and local authorities, politicians, companies and investors with future decision-making processes for other major infrastructure projects situated in areas with special ecological value.

Source: WWF Poland.

Although the Directives do give primacy to their biodiversity objectives, and do prevent some developments, there is no clear evidence that the Directives are a significant constraint on overall sustainable development. In fact, the only available study that examined this particular issue was carried out in the UK, concluding that the Directives are working well, allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained (HM Government, 2012).

The fact that some authorities and businesses stated that the Directives are a constraint on development may represent an issue of perception. As pointed out by some nature conservation NGOs, evidence suggests that there may be a considerable disparity between perceptions of regulation and actual measurable results, i.e. there may be a gap between business perceptions of regulation and 'objective reality' (OECD, 2012b). A similar observation is made by Schoukens and Bastmeijer (2014) regarding the perceived strictness of species protection under Article 12 of the Habitats Directive. They note that many developers have the misapprehension that the presence of a protected species on some land will always prevent it from development. This is not the case and many developments go ahead with minor changes to protect the species in question.

Although the majority of the literature and the stakeholders consider the Directives to generally facilitate sustainable development, studies have indicated that improvements could be made in their implementation. Areas for improvement identified in the DEFRA UK study are summarised in Box 95 below. (See section 5.1.3.1.2 for more on the Commission review of AAs and section 6.5 for a discussion of good practice.)

294 http://www.netzausbau.de/cln_1411/DE/Bedarfsermittlung/Charlie/NEP-UB_Charlie/NEP-UB_Charlie-node.html

Box 95 Key areas for improving implementation of the Directives in England, as identified in the UK HM Government Review of the Birds and Habitats Directives

- **The complexity of the legislation and guidance**: The transposing terrestrial regulations alone, covering approximately 134 regulations and 7 schedules over 94 pages, and Guidance documents (EU and national and non-Government) amounts to over 60 documents totalling over 1,600 pages. This can be difficult for competent authorities to navigate and is daunting for developers, large and small. It also reinforces a perception of inconsistency and lack of transparency in the process.
- **The complexity of the authorisation process for development**: Responsibilities for the Directives fall across a range of bodies, each potentially with different priorities and different experience in dealing with the issues. Where there is a lack of coordination between them, there is the potential to add to costs and delays.
- **The availability and comparability of data:** This has implications for every stage of the decision-making process, with uncertainty in evidence requirements and interpretation potentially increasing the risk of delay and higher costs. The shortage of baseline data is a particular issue in relation to the marine environment.
- **The culture and capacity of all organisations involved in the process**: While good practice exists, there is still scope to strengthen the customer-focused, collaborative culture in statutory bodies. Skills and capability gaps also occur in all bodies – statutory bodies, developers and their ecological consultants.

Source: Birds and Habitats Directives Review HM Government (2012).

Some of the questions included in the online public consultation questionnaire are relevant to this question on sustainable development. In particular, Q9asked, 'While the Directives are primarily focused on conserving nature, to what extent have other aspects been taken into account in implementing them?' Respondents were asked if the aspects included economic aspects, social concerns, cultural concerns and regional and local characteristics. Overall, the majority of respondents agreed that all aspects were being taken into account when implementing the Directives (93-94%). However, there were clear differences in opinion between the various respondent groups. 94% of individuals and around two-thirds of NGOs believed that all the aspects were addressed when implementing the Directives. Academic research institutions also had high agreement, with percentages ranging from 62% (local characteristics) to 72% (economic resources). However, only a third of private organisations or associations believed that all of the aspects were addressed when implementing the Directives.

In conclusion, the Nature Directives have been designed to allow and facilitate sustainable development, with their objectives and provisions ensuring that social and economic goals are taken into account. Consequently, Natura 2000 is based on a wider concept than maintaining strictly protected nature reserves, and instead allows activities to be carried out (such as agriculture forestry, fishing and hunting) provided that they are compatible with the conservation objectives of the sites in question. In accordance with sustainability and wider environmental principles, the provisions for assessing the acceptability of impacts also incorporate the precautionary principle and the polluter-pays principle.

While some stakeholders do not consider the Directives to balance environmental, economic and social interests but instead give primacy to the Directives' objectives, the available evidence indicates that this does not, in practice, obstruct development. Instead, there are numerous examples where it has led to solutions that have resulted in win-wins. Furthermore, the Directives recognise that public interest may override nature conservation objectives on occasion and allow for this, provided that there are no other alternatives, and that the impacts are compensated.

Although there is evidence that the Directives' procedures have had some implementation problems, in particular in relation to understanding the AA and compensation requirements and the application of strict protection requirements to some species, many of the problems are historic, and are now declining as a result of legal judgement, guidance and the development of good practice and innovation solutions. Consequently, from

the EU and UK studies - the best recent evidence on the application of the Directives - the procedures can be concluded to be generally well implemented and allow sustainable development to go ahead, although further improvements can be made.

7.3.4 Key findings

- The 2006 Renewed EU Sustainable Development Strategy aims to tackle the conservation and management of natural resources, sustainable consumption and production, sustainable transport, climate change and energy, public health, social inclusion, demography and migration, and global poverty and sustainable development challenges. The Nature Directives are a key element of the environmental pillar of sustainable development, directly contributing to the first of these aims, but also contributing indirectly to responses to climate change and public health (as described in Section 6.1).
- The Directives' contributions to sustainable development arise because the conservation of biodiversity is a sustainable development objective in itself, and also because they contribute to a wide range of other sustainable development goals. Most notably, they maintain and enhance ecosystem services which support resource management (e.g. fisheries benefit from marine protected areas, the maintenance of habitat for game species, soil management), health and wellbeing (e.g. the protection of quality green space with high aesthetic values), and provide sites for recreation, education and research, contributing to the social and economic pillars of sustainable development.
- The Directives also explicitly take other social and economic goals into account, and have been designed to allow and facilitate sustainable development not linked to biodiversity objectives, where this is compatible with the aims of the Directives. Consequently, Natura 2000 is based on a wider concept than maintaining nature reserves, and it allows for sustainable human activities that are compatible with the conservation objectives of the sites in question. The Directives do not result in rigid site protection with predetermined restrictions on activities, but, rather, the sustainability of activities is judged on a case-by-case basis.
- The provisions in Articles 6(3) and 6(4) of the Habitats Directive are of key importance in enabling sustainable development by allowing activities, provided they do not have an adverse effect on the specific objectives of the site, whilst taking a precautionary approach. Developments with adverse effects may also go ahead if there are imperative reasons of over-riding public interest, and where there are no alternatives. At the same time, in accordance with the polluter pays principle, the project promoter must compensate for any negative impacts on the coherence of the Natura 2000 network (e.g. through the restoration of habitats elsewhere).
- The species protection measures within the Directives have led to problems in some development projects (e.g. regarding some widespread species, as described in section 6.4). However, there is evidence to suggest that, in some cases, this may arise from disproportionate or overly risk-averse implementation practices in some Member States (combined with knowledge constraints – see section 6.8). In others, the measures are generally considered by most nature authorities and other stakeholders to have sufficient flexibility to enable activities that impact on protected species, provided steps are taken to ensure that the overall objectives of the Directives are not hindered (i.e. the maintenance of Favourable Conservation Status).
- A number of stakeholders stated that the Directives do not aim to balance environmental, economic and social interests, but instead give primacy to the Directives' objectives, for example, in the context of selecting Natura 2000 sites and in decision-making under Article 6(3). There is no evidence, however, that the Directives are a significant constraint on overall sustainable development. A UK review of the Directives concluded that 'the Directives are working well,

allowing both development of key infrastructure and ensuring that a high level of environmental protection is maintained'. While evidence of the situation in other Member States is limited, the majority of respondents to the evidence gathering questionnaire expressed similar views to the UK study's conclusions.

- Both the UK review and the evidence gathering questionnaires indicated that improvements can be made in the Directives' contribution to sustainable development. Examples given focused on the achievement of strategic objectives rather than rigidly following processes, identifying potential conflicts early in the development planning cycle (e.g. improved linkages to spatial planning and SEA), improving data coverage, quality and accessibility, and providing training and guidance for permitting authorities.

7.4 R.4 - How relevant is EU nature legislation to EU citizens and what is their level of support for it?

7.4.1 Interpretation and approach

This question encapsulates two elements: how relevant to Europeans is EU nature legislation (i.e. how closely connected do they feel to the nature legislation), and the level of support Europeans give to EU nature legislation, its objectives and values[295]. In order to answer this question, the following judgment criteria were used[296]:

- Europeans are aware of the Natura 2000 network.
- Europeans have some knowledge of, or take action to enforce, the main features of the Birds and Habitats (e.g. designation of protected areas, requirement for an impact assessment of relevant projects, participation in public consultations for the permitting of plans and projects, challenging relevant decisions taken by public authorities).
- Europeans are in favour of establishing protected areas.
- Europeans are in favour of infrastructure projects permits being rejected on the grounds that the projects have a negative impact on protected areas or species.
- Europeans are in favour of finding alternatives to projects whose implementation would have a negative impact on protected areas or species.
- Europeans agree that projects which have a negative impact on protected areas or species can be allowed, exceptionally, on economic grounds.

Indicators of relevance include awareness of the Natura 2000 network, whether or not they access protected areas, and the extent to which they take action based on the Directives (e.g. by participating in public consultation procedures for the permitting of relevant projects).

The second range of issues linked to the judgement criteria investigates the extent of Europeans' support for EU nature legislation, i.e. whether or not they are in favour of it. Indicators of relevance include whether or not Europeans favour the expansion of protected areas, and whether they prioritise nature protection over other activities.

The Nature Directives' specific and operational objectives (described in section 2.3 of the study) can only be achieved if a specific outcome is reached: the general public receive education and general information on the need to protect species and to conserve habitats (Article 22(c) of the Habitats Directive). The challenges in the implementation of the Nature Directives over the years - particularly at the start of the implementation period in several Member States - have shown the importance of this awareness objective.

[295] We understand the evaluation question to use the term 'EU citizens' in a broad, non-technical manner to refer to all natural or legal persons that have EU citizenship, registered residence or seat in a Member State of the EU (whether currently within EU territory or not), as well as any other person present in the territory of the EU. In answering the question, we therefore prefer to use the term 'Europeans', as it makes no reference to citizenship and has a broader meaning of 'characteristic of Europe or its inhabitants', or 'relating to the European Union' (www.oxforddictionaries.com).

[296] The order in which judgment criteria are listed does not imply an order of priority or different weighting being attributed to the cited criteria.

7.4.2 Main sources of evidence

Evidence used to answer this question consisted of surveys of public opinion at different levels – EU wide (Eurobarometer), national (e.g. surveys carried out by authorities or organisations in a specific Member State) or sub-national (notably academic articles investigating public attitudes in certain regions or around Natura 2000 sites). These sources provide robust evidence, as they are surveys that are representative of the population at EU, national or sub-national level and therefore have statistical value. The Eurobarometer provides a broader perspective, valuable in the context of the Nature Directives.

Box 96 Eurobarometer

Eurobarometer is a series of surveys of public opinion financed by and conducted on behalf of the European Commission. They address a wide array of topics related to the EU throughout the Member States[297].

The standard Eurobarometer was established in 1973. Each survey is made up of about 1,000 face-to-face interviews per Member State. Reports are published twice every year[298].
Special Eurobarometer reports are based on in-depth surveys on specific themes carried out for the European Commission or other EU institutions[299].

Additional evidence was drawn from responses to the evidence gathering questionnaires and the results of the online public consultation. While these were not intended to be representative and therefore do not have statistical value, they nonetheless provided relevant stakeholders with the opportunity to express their views on the Nature Directives and the evaluation team with useful information to answer the evaluation question.

7.4.3 Analysis of the question according to available evidence

7.4.3.1 EU studies

The 2015 Eurobarometer 'Attitudes towards biodiversity' report indicates that the majority of Europeans (60%) have heard of the term 'biodiversity', though less than one-third (30%) know its meaning[300]. Almost four in 10 (39%) have never heard the term.

Knowledge of the Natura 2000 network is even lower. Nearly three-quarters of Europeans (73%) have never heard of it, and only 10% have heard of it and know what it is, while one in six Europeans (16%) has heard of the Natura 2000 network but does not know what it is. Behind the averages lie considerable differences in knowledge of Natura 2000 across Member States. While very few have heard of the network in the UK (4%), higher percentages are recorded in Bulgaria (75%), Finland (74%) and Slovenia (58%)[301].

More than four in 10 Europeans (44%) do not feel well-informed about the loss of biodiversity. Almost a quarter (22%) feel they are not informed at all, and only one-third (33%) feel they are well- or very well-informed[302]. Similarly, the 2014 Eurobarometer on

[297] https://en.wikipedia.org/wiki/Eurobarometer accessed 17.02.16
[298] http://ec.europa.eu/public_opinion/description_en.htm accessed 17.02.16
[299] http://ec.europa.eu/public_opinion/description_en.htm accessed 17.02.16
[300] http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091 accessed 17.02.16
[301] http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091 accessed 17.02.16
[302]

the attitudes of Europeans towards the environment shows that a sizeable proportion do not feel informed about a number of issues related to biodiversity in general and the Nature Directives in particular, e.g. soil degradation (29%), depletion of natural resources (28%), invasive species (28%), water and agricultural pollution (28%), and the loss or extinction of natural ecosystem, species and habitats (25%) (TNS Opinion & Social, 2014).

This evidence thus indicates that only 16% of Europeans have heard of the Natura 2000 network, with even fewer (10%) knowing what it is[303]. It is not possible, however, to judge whether the fact that 10% of Europeans know about Natura 2000 is a high or a low result in relation to any expectations from the legislator at the time of the Directives' adoption.

Europeans' views about the reasons why the Natura 2000 network is important are shown in the table below.

Table 33 Percentage of Europeans that think the stated roles of the Natura 2000 network are either very important or somewhat important[304]

Problem	Very important	Somewhat important	Total
Protecting endangered animals and plants	69%	27%	**96%**
Safeguarding nature's role in providing clean air and water	67%	28%	**95%**
Preventing the destruction of valuable areas on land and at sea	66%	28%	**94%**
Promoting nature friendly land use	56%	36%	**92%**
Increasing the quality of life of local people	53%	37%	**90%**
Stimulating local socio-economic development (e.g. via eco-tourism and nature-related leisure activities)	43%	42%	**85%**

Interestingly, the importance of the network for eco-tourism and nature-related recreational activities is confirmed by another recent Eurobarometer report. The 2014 report on the attitudes of Europeans towards the environment found that nature was one of the main reasons for going on holiday for 31% of Europeans[305][306]. The survey shows that Europeans' believe that environmental protection and economic growth support, rather than contradict, each other. This will be further discussed below.

Initiatives such as the 2004 agreement between the nature conservation organisation BirdLife International and FACE (the Federation of Associations for Hunting and Conservation of the EU), under the umbrella of the Commission's sustainable hunting initiative (SHI), appear to confirm that diverse interest groups appreciate the role of the Directives. Within the agreement, the two organisations 'recognise that the Birds Directive is an appropriate legal instrument for the conservation of both wild birds…and their habitats', 'support the establishment of the Natura 2000 Network' and 'the importance of effective habitat protection' (Birdlife International and FACE, 2004).

Europeans have taken action to secure the proper application of the Nature Directives. Examples of such activity are citizen petitions to the European Parliament[307], complaints to the Commission, participation in relevant procedures (e.g. the assessment of impacts

http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091 accessed 17.02.16

[303] Europeans aware of the Natura 2000 network.

[304] Author's presentation of data in http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091. Data presented in this table are those for two of the five possible responses – "very important", "somewhat important", "not very important", "not important at all", "don't know" – reported in the source.

[305] http://ec.europa.eu/public_opinion/flash/fl_414_en.pdf accessed 17.02.16

[306] There are however broad national differences – in Belgium, the Czech Republic, Lithuania and the Netherlands, enjoying nature is the main reason for taking a holiday for 55%, 52%, 48% and 43% of respondents respectively. The percentage is only 14% for Ireland.

[307] http://www.europarl.europa.eu/sides/getDoc.do?type=COMPARL&reference=PE-480.719&format=PDF&language=EN&secondRef=03 accessed 17.02.16

of plans or projects, the establishment of site management plans (Eurosite, 2010), and legal challenges to resulting decisions[308][309][310]. This information, although anecdotal, is relevant for the second of the above-listed judgment criteria[311].

Although Europeans have limited specific knowledge of biodiversity issues, they still strongly perceive biodiversity loss to be serious and detrimental. The table below identifies the aspects of biodiversity loss that Europeans find to be most concerning, according to the 2015 Eurobarometer 'Attitudes towards biodiversity' report.

Table 34 Seriousness of specific aspects of biodiversity loss, according to Europeans[312]

Problem	Very serious	Fairly serious	Total
The degradation and loss of natural habitats like forests, meadows, wetlands	61%	33%	**94%**
The loss of benefits that we get from nature, such as crop pollination, soil fertility, prevention of floods and droughts, climate regulation, clean air and water	59%	34%	**93%**
The decline and disappearance of animal and plant species	58%	35%	**93%**
The disconnection from nature in urban areas and modern lifestyles	42%	43%	**85%**
The negative economic impacts of biodiversity degradation, such as the loss of income from nature-oriented tourism or fisheries	36%	44%	**80%**

Europeans' concerns about the state of the environment in general, and biodiversity in particular, are not only related to the global situation. An overwhelming majority consider the decline and possible extinction of animals, plants, natural habitats and ecosystems to be a serious problem in Europe (80%) and in their own country (76%)[313].

Whether biodiversity loss is already having an effect or whether its impacts lie mainly in the future seems to be more controversial. Less than one-quarter of Europeans (23%) already feel affected by the loss of biodiversity, while a further one-third thinks that they (35%) or their children (33%) will be affected in the future[314]. 95% of Europeans also state that environmental protection is important to them personally, with three-quarters (75%) thinking that the state of the environment affects their quality of life[315]. This is

[308] See, for example, an online petition that obtained nearly 10,000 signatures (in a city of some 256,600 inhabitants in the UK) to stop a new development of 57 houses that, according to the petitioners, would have endangered the survival of a species of spider found nowhere else in the world: https://www.researchgate.net/publication/273835475_The_performance_of_Protected_Areas_for_biodiversity_under_climate_change accessed 16.12.15. See also another online petition, signed by about 3,000 people, supporting a moratorium on the killing of wolves in the period 2012-2013 in Slovenia: http://www.tretjiclen.si/slo/volkovi/ accessed 17.02.16

[309] A review of best practice on dealing with conflicts in the implementation and management of the Natura 2000 network at local site level.

[310] For further examples of these activities, see the section on results from the evidence gathering questionnaires below.

[311] European citizens have some knowledge of, or take action to, enforce the main features of the Birds and Habitats (e.g. designation of protected areas, requirement for an impact assessment of relevant projects).

[312] Author's presentation of data in data in http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091. Accessed 17.02.16; Data presented in this table are those for two of the five possible responses – 'very serious', 'fairly serious', 'not very serious', 'not at all serious', 'don't know' – reported in the source.

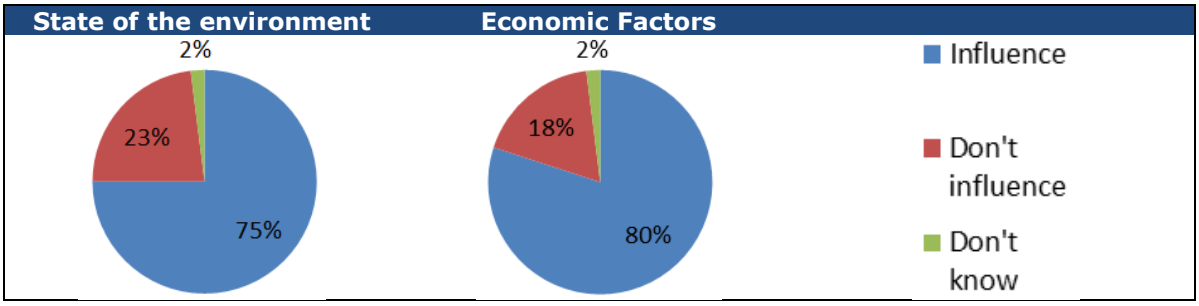
[313] http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091 accessed 17.02.16

[314] A very small minority (6%) believe biodiversity loss will have no effect. See http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091 accessed 17.02.16

[315] For 53% it is very important, for 42% it is fairly important. See http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf accessed 17.02.16

almost equal to the number (80%) identifying economic factors as determinants of their quality of life[316].

Figure 20 Share of Europeans that believe their quality of life is affected by the state of the environment and by economic factors[317]



When it comes to the debate about the economy and the environment, Europeans do not see contradictions between the two. The significant majority (74%) believe that environmental protection can boost economic growth and only a small minority disagree (16%)[318]. Most Europeans (59%) think that social, environmental and economic criteria contribute equally to measuring societal progress[319].

As the table below shows, there is considerable agreement among Europeans (97%) that we have a responsibility to look after nature. Most Europeans also support biodiversity protection because it is essential to tackle climate change (94%), because they believe our health and well-being depend on it (93%), because biodiversity is important for long-term economic development (91%) and indispensable for the production of goods such as food, fuel and medicines (89%).

Table 35 Reasons why it is important to halt biodiversity loss, according to Europeans[320]

Reasons why it is important to halt biodiversity loss	Totally agree	Tend to agree	Total
We have a responsibility to look after nature	76%	21%	**97%**
Looking after nature is essential in tackling climate change	67%	27%	**94%**
Our health and well-being are based upon nature and biodiversity	60%	33%	**93%**
Biodiversity and healthy nature are important for our long-term economic development	56%	35%	**91%**
Biodiversity is indispensable for the production of goods such as food, fuel and medicines	53%	36%	**89%**

Similarly, very few (7%) see economic development as taking precedence over nature protection, or being an appropriate justification for destroying or damaging protected areas. A higher proportion of Europeans (41%) believe that damage or destruction is only acceptable for projects of major public interest, provided that the damage is fully compensated. But 46% of Europeans would prohibit damage to, or destruction of, pro-

[316] http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf accessed 17.02.16
[317] Own elaboration based on data in http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf accessed 17.02.16
[318] http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf accessed 17.02.16
[319] 20% think that social and environmental criteria take precedence over economic criteria. By contrast, 14% hold that economic criteria are more important. See http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf accessed 17.02.16
[320] Own elaboration based on data in http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091 accessed 17.02.16

tected areas altogether[321]. These findings pertain to the last three judgment criteria applied for answering this question[322].

A wider special survey of EU public opinion carried out in 2014 provides insight into the issues that Europeans feel most concerned about. In this survey, respondents were asked to identify the two most important issues that they are facing at the moment. More Europeans (5%) mentioned environmental, climate and energy issues, than terrorism (2%)[323].

A study presenting the results of a large poll of over 200 conservation scientist in 24 Member States indicates that, in the respondents' opinions, people are generally quite sensitive to environmental issues, but poor knowledge and the negative attitudes of local stakeholders hinder the implementation of the Natura 2000 network[324][325]. Respondents recommended public awareness and educational initiatives as priorities for the success of Natura 2000, stressing the need to keep local stakeholders well-informed.

The study further indicates that farmers, foresters, landowners and residents living close to protected sites see Natura 2000 as a hindrance and often oppose its implementation, depending on the economic interests involved. While the study suggests that public participation can help to reduce opposition, it can also result in the role of science being diluted in site management decisions, as nature conservation goals are compromised by other interests.

7.4.3.2 National studies

National level sources lend weight to the finding that Europeans generally support nature protection and protected areas. They show that while the level of familiarity with Natura 2000 is very variable - and sometimes very low - people appear to be supportive of the aims of Natura 2000 once made aware of them.

A Nature Awareness Study published by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Schell et al, 2012) found that the vast majority of the German population regard nature conservation as a moral obligation (95%) and an important political task (86%). Most believe that the diversity of flora and fauna, as well as their habitats, must be safeguarded (93%). Although a significant majority of people (71%) have heard the term biodiversity, a far smaller proportion (42%) know what it means. Nevertheless, most interviewees (67%) expressed the belief that biodiversity is decreasing and that its preservation is a social task of prime importance (71%). Similarly, 68% of Germans believe that the consumption of land for the development of residential, commercial or transport infrastructure should be reduced. A public opinion survey carried out in France asked respondents to name the two most important environmental problems. The state of biodiversity was mentioned by 33% of

321 http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091 accessed 17.02.16

322 Europeans are in favour of infrastructure projects not being authorised on grounds that the projects have a negative impact on protected areas or species; Europeans are in favour of finding alternatives to projects whose imple-mentation would have a negative impact on protected areas or species; Europeans agree that projects which have a negative impact on protected areas or species should nevertheless be authorised on economic grounds.

323 But less than, for example, the cost of living (27%) and unemployment (16%). See http://ec.europa.eu/public_opinion/archives/eb/eb83/eb83_publ_fr.pdf accessed 17.02.16

324 http://onlinelibrary.wiley.com/doi/10.1111/cobi.12366/abstract. Also see the literature cited therein.

325 The study is based on an anonymous survey presented to conservation scientists during the 2nd European Congress for Conservation Biology in September 2009 and was widely distributed via the professional network of the Society for Conservation Biology Europe Section. Responses were received from 242 conservation professionals with a strong academic background from 24 EU Member State. The source does not identify the 24 Member States.

respondents, making it the third highest environmental concern after climate change (40%) and natural disasters (35%)[326].

Environmental protection is also highly regarded among most Romanians (89%), according to a survey (IRSOP Market Research & Consulting, 2013). The same publication reports that while 71% of Romanians have heard about protected areas and 54% about biodiversity, only a small minority (11%) has ever heard of the Natura 2000 network. Even among people that live within a Natura 2000 site, only 28% are aware of its designation. While knowledge of the network is low, which is relevant for the first judgment criterion, there is significant support for it, with 60% of respondents considering it very useful, and 92% seeing it as beneficial for the community[327]. Other research, also in Romania (CNDD, 2012), confirmed that 88% of interviewees hold positive opinions of the Natura 2000 network and believe it is important for tourism (74%) and job creation (57%), among other things, which suggests citizens of that country are in favour of establishing protected areas.

A study carried out in Greece found a high level of environmental concern in communities living around Natura 2000 sites, with most inhabitants prizing their close contact with nature very highly (80.5%)[328]. Contrary to findings in other countries, most locals were aware of the existence of protected areas (71.3%) and knew that they were part of the Natura 2000 network (64%)[329]. When asked about the objectives of the network, 80.2% referred to the protection of flora and fauna, 51.2% to the protection of natural habitats and landscape, 47.2% to the development of the area, and 12.7% to eco-tourism.

Inhabitants of the Polish Carpathians were also found to be widely supportive of initiatives to legally protect nature in their area (92%) (Pietrzyk-Kaszynska et al, 2012). However, while they generally had correct knowledge of the form of nature conservation in their region (national park, landscape park, reserve), only one-third had heard of the Natura 2000 network, with an even smaller minority (17%) aware of the existence of designated sites in the vicinity.

These studies demonstrate that the level of knowledge of the Natura 2000 network varies considerably among and between Europeans. This is relevant for the first of the judgment criteria for answering this evaluation question.

A survey in Slovakia demonstrated support for protected areas (related to the third judgment criterion), in which there was opposition from 73.4% of respondents to a proposal to reduce the boundaries of a protected area[330]. The protected area hosted a forest which had been badly damaged by a storm, and the contentious proposal sought to allow more intensive management of the forest (Dimitrakopoulos et al, 2010).

A survey in Spain found indications of positive socio-economic impacts on local communities from protected areas (Hidalgo et al, 2011). Benefits such as job creation and increased tourism were stated to outweigh costs from hunting restrictions. Rural populations were generally happy about the effects of national parks in their area, which

326 https://www.researchgate.net/publication/273835475_The_performance_of_Protected_Areas_for_biodiversity_under_climate_change, accessed 16.12.15

327 Europeans aware of the Natura 2000 network.

328 http://www.sciencedirect.com/science/article/pii/S0301479710001118. This study is based on a questionnaire administered to local residents of three wetlands in Greece of international or European importance (the National Park of Eastern Macedonia and Thrace (NPEMT), the wetland of Kalloni and Lake Tavropou). Subsequent face-to-face interviews were also conducted. The sample included 390 participants, employed in different sectors.

329 This is the average across the three wetland areas studied. Values for each area are 81.4% (Kalloni), 64.7% (NPEMT) and 63.7% (Tavropou). The source suggests that the higher levels of knowledge in Kalloni may 'be attributed to the fact that an information campaign was conducted in the area informing residents of the inclusion of the Kalloni wetland in the Natura 2000 network [...] This is also reflected in the high percentage of individuals in Kalloni reporting that they have been informed about protected areas through seminars compared to lower percentages in the NPEMT and Lake Tavropou'.

330 Tatra national park.

may be seen as relevant for the third of the judgment criteria applied to answer this evaluation question[331].

Research on public attitudes towards Brown Bears in Slovenia (a species protected under the Habitats Directive) (Kaczensky et al, 2004) documented very positive attitudes towards the animals. Only 6% of respondents held negative attitudes (although they expressed their views more strongly and frequently than others). Interestingly, the key factor influencing people's opinions of Brown Bears was not the level of damage actually caused by bears, or whether or not the respondent was a hunter, but, rather, perceptions about how dangerous bears are to humans (Linnell, 2013) [332].

7.4.3.3 Evidence gathering questionnaire responses

Of the 112 stakeholders surveyed, nearly half (55) responded to the question about the relevance of EU nature legislation to its citizens. However, of those 55 responses 16 provided no supporting evidence[333].

The economic benefits connected to the Directives were most often cited by respondents (14). Some of these benefits derive from access to EU funding. For example, the active management of semi-natural grasslands now represents an important part of the income of about 900 individuals and organisations in Estonia. There are indications that in both Estonia and Ireland the availability of EU funding has encouraged forest managers and farmers to better integrate sustainability considerations into their practices.

However, the strongest emphasis was placed on increased tourism (8 respondents). Respondents indicated that, in Estonia, EU funds have allowed the renovation of trails, birdwatching towers and other infrastructure to attract visitors. In Poland and the Czech Republic, the Natura 2000 network has provided opportunities for sustainable agriculture and tourism. The economic opportunities of sustainable tourism were also highly valued in Spain, e.g. in the Canary Islands 200,000 signatures were collected calling for an economy based on nature and tourism. This has led to the adoption in 2014 of a regulatory framework for Natura 2000 and tourism, aiming to provide incentives for the promotion of this type of business. In Portugal, nature- and wildlife-related tourism is reportedly experiencing significant growth, with over 400 new nature tourism operators opening for business in the last five years.

Europeans' enjoyment of, and interest in, nature seem confirmed by their active participation in nature-related events, some of which relate directly to the Directives.

Four respondents to the evidence gathering questionnaire mentioned participation in public consultations related to the Directives with almost twice that number (9) citing civil society's involvement in monitoring activities and other actions promoting compliance with the Directives[334]. All these responses are relevant for the second judgment criterion applied to answer this evaluation question[335]. Examples include the 1984 occupation of the Hainburger Au flood plain in Austria, a 2011 demonstration against illegal logging in a site protected as Lynx habitat in the Czech Republic, individuals volunteering to manage protected areas (about 3,000 every year in Denmark), monitor birds (about 350 people in Ireland every winter), survey the conservation status of marine species and large carnivores (several examples from Italy), and petition for new Natura 2000 sites (around 34,000 signatures collected in support of including the Salgados lagoon in

[331] Europeans in favour of establishing protected areas.
[332] For further insights into the relationship between people, large carnivores and institutions.
[333] From the 39 conclusive answers received, 14 (35%) came from Member State nature protection authorities, 22 (56%) from NGOs and three were provided by stakeholders from the business sector. The information from these answers is taken into account here.
[334] An example explicitly mentioned by respondents was the participation of 51 individuals and associations in the designation of the National Park of Mount Olympus in Greece.
[335] Europeans have some knowledge of, or take action to, enforce the main features of the Habitats and Birds Directives (e.g. designation of protected areas, requirement for an impact assessment of relevant projects).

Spain, into the network)[336][337]. The Rospuda case in 2006 was a landmark example of intense involvement of citizens in Poland and civil society at EU level. The Rospuda River Valley (Upper Rospuda Valley) was threatened by planned construction of the Augustów bypass expressway, which was to cut across the protected wilderness area and Natura 2000 site in the valley. An online petition launched by the Polish daily newspaper, Gazeta Wyborcza, was signed by over 140,000 people[338]. At the same time, representatives of landowners, users and foresters at EU level (Eustafor) mentioned that while they are knowledgeable about the impacts of their activities on nature conservation, they have not been properly involved in the development and adoption of conservation measures in many cases.

Other respondents also cited citizens' role in promoting the judicial control of administrative decisions, thus contributing to the correct application of the Directives, which also contributes to fulfilling the second judgment criterion[339][340].

Europeans' participation in nature-related events was also put forward by five respondents as an indication of their interest in biodiversity and the environment. In Germany, for example, over 1,000 events take place each year, attracting up to 300,000 participants[341]. In Greece, too, events such as Eurobirdwatch attract thousands of people every year to 35 different areas of the country. Every March, 7,000-10,000 children construct nests for swallows on Swallows Nest Day.

Seven respondents expressed the view that a lack of knowledge of, or resistance to, the Directives is often the result of communication failures. In several countries, authorities did not carry out information campaigns about the Directives and the consequences of site designation, thus leaving space for (allegedly exaggerated) negative perceptions to arise.[342] While Article 22(c) of the Habitats Directive requires Member States to promote education and general information on the need to protect species of wild fauna and flora and to conserve their habitats and natural habitats, the expectation is only generally defined.

A respondent pointed out that Europeans' support for EU policies and legislation depends on the level of information that they receive, giving the example of efforts made by hunting organisations in Greece to inform hunters and stakeholders about the Nature Directives. This information initiative resulted in a significant decrease of negative attitudes towards the Directives.

Another respondent explained that it is difficult for rural populations – who are directly concerned by the impacts of the Directives on hunting, farming and fishing – to understand why the Annexes to the Directives are not updated in response to changes in species conservation status (see the response to evaluation question R.2.).

[336] The Šumava National Park.
[337] https://secure.avaaz.org/en/petition/Save_Salgados_a_unique_internationally_recognized_birding_sanctuary_from_being_destroyed/?pv=30 accessed 17.02.16
[338] http://www.natura2000.efort.pl/pliki/2012/rospuda_case.pdf
[339] Europeans have some knowledge of, or take action to, enforce the main features of the Habitats and Birds Directives (e.g. designation of protected areas, requirement for an impact assessment of relevant projects).
[340] See, for example, the disputes that led to cases C-38/99 and C-258/11. Examples of challenges to administrative decisions by national bodies deemed to violate the Nature Directives were also put forward. See http://www.irliepaja.lv/lv/raksti/vide/turpinas-karot-pret-rapsoil-veja-parka-buvi/
[341] International Day for Biological Diversity, International Migratory Bird Day, European Bat Night, International Day of the Baltic Sea Porpoise, GEO Species Diversity Day, the Birdrace event and Biodiversity Hiking Day, are some examples. About 100 Junior Ranger groups offer 1,500 children educational and recreational activities linked to nature.
[342] Neither Directive explicitly requires Member States to conduct such awaraness-raising campaigns. Article 22(c) of the Habitats Directive requires Member Sates to promote education and general information on the need to protect species and to conserve habitats, but it does not impose similar efforts in relation to knowledge of the Directives or the Natura 2000 network.

7.4.3.4 Results from the online public consultation

- An important indication of the relevance of the Nature Directives for Europeans is the unprecedented number of responses submitted by a wide range of individuals to the online public consultation organised by the Commission between April and July 2015, in relation to the Nature Legislation Fitness Check. In total, 552,472 replies were received, of which 547,516 (99.1%) were from individual members of the public. This is the largest response the Commission has ever received to one of its online consultations.
- The results of the consultation were influenced by campaigns organised by several interest groups with at least 12 such campaigns identified. In many cases, these campaigns also provided proposals on how to answer specific questions. The campaigns were highly successful and generated over 90% of the total responses to the online public consultation, creating a significant impact on results. For example, about 92% of the total replies were due to the Nature Alert! campaign organised by a group of environmental NGOs (responding only to Part I of the questionnaire) while the majority of the responses to Part II were from the business and private sector.
- Within this context, the results of the online public consultation indicate that an overwhelming majority of respondents (98%) believe nature conservation is important, and see the Directives as crucial to achieving this objective. Most considered the benefits of the Directives to outweigh their costs (93%), believing that the Directives take sufficient account of economic, social and cultural concerns (93-94%).
- While these were the overall results, it is worth noting that the analysis of the responses from business show a weaker belief (75%) that the costs of implementing the Directives exceed their benefits, with only 13% sharing the view that the Directives take sufficient account of economic, social and cultural concerns.
- Consistent with the results of the studies described above, the overwhelming majority of respondents to the online public consultation declared nature to be (very) important to them.
- Although familiarity with EU nature legislation was limited among individual respondents, they nevertheless expressed the opinion that the Directives are very important for nature and biodiversity conservation. This view was not shared by the majority of business respondents, who considered the Directives to be relatively unimportant. Even more contentious was the question of whether or not the Directives' objectives and approach are appropriate for protecting nature in the EU. Only individuals, NGOs and academic/research institutes gave a strongly positive answer to this question. Businesses offered the more cautious opinion that they are only somewhat appropriate. Similar results were recorded in relation to a question about the importance of the Natura 2000 network for protecting species and habitats.

7.4.4 Key findings

According to the judgment criteria listed at the beginning of this section, and the evidence reviewed to answer this question, the following key findings can be drawn:

- There is a strong consensus among Europeans about the importance of nature protection. The overwhelming majority of Europeans (80%) consider biodiversity loss to be a serious problem. They are not only concerned about global biodiversity loss, but also about biodiversity loss in their own country (2015 Eurobarometer – Attitudes of Europeans towards biodiversity).

- Europeans' enjoyment of, and interest in, nature is demonstrated not only by surveys and other studies, but also by their active participation in the online public consultation carried out for this analysis (over 550,000 participants), in nature-related events and campaigns, in activities that contribute to the implementation of the Directives (e.g. volunteering in protected sites, species monitoring, public consultations), and to their correct application (e.g. complaints to the EU institutions, challenges to relevant decisions of competent authorities).
- According to the 2015 Eurobarometer 'Attitudes of Europeans towards biodiversity', at least two-thirds of respondents consider nature protection areas such as Natura 2000 to be very important in protecting endangered animals and plants (69%), safeguarding nature's role in providing food, clean air and water (67%) and preventing the destruction of valuable nature areas on land and at sea (66%).
- Despite the importance attached to nature, Europeans are generally not well-informed about biodiversity, the Nature Directives, or the Natura 2000 network. However, significant differences in awareness of the network exist among Member States (ranging from 4% to 75% of the national population) and there are indications that this may be due to public authorities failing to raise awareness or provide information about the Directives (activities which are however not expressly required by the Directives).
- Most Europeans do not view economic growth and environmental protection as conflicting objectives. On the contrary, most appear to believe that we have a responsibility to protect nature, and that the state of the environment and economic factors are equally important determinants of societal progress and individual quality of life. Both the literature reviewed and stakeholder responses to the evidence gathering questionnaire emphasise the economic benefits arising from the Directives, particularly increased (eco)tourism and related job creation.
- The results of the online public consultation demonstrate the importance of nature conservation for Europeans. This online public consultation generated an unprecedented 552,472 responses from a wide range of individuals, the largest response the Commission has ever received to one of its online consultations.
- While contrasting views emerged from the online public consultation, those responses were more polarised and appeared to have been influenced by campaigns led by different interests, which, in many cases provided proposals on how to answer specific questions. Over 520,000 Europeans participating in the online public consultation stated that the Directives are important for nature conservation.
- Almost 60% of Europeans believe that environmental factors should be as important in measuring progress as economic criteria (e.g. GDP).
- A strong commitment to European nature is confirmed by the fact that 46% of Europeans would prohibit all damage to, or destruction of, protected areas. 41% would only accept such consequences for projects of major public interest, and provided any damage or destruction is fully compensated. Only 9% would prioritise economic development over nature protection and justify the associated destruction of, or damage to, protected areas. While there are some differences among Member States in the exact shares of population supporting the different positions, they are not sufficient to undermine this finding.
- Most Europeans are unwilling to trade damage or destruction to nature in protected areas for economic development.

7.5 R.5 - What are citizens' expectations for the role of the EU in nature protection?

7.5.1 Interpretation and approach

This question examines Europeans' opinions on whether or not the EU should act to protect nature, and, if so, to what extent[343]. In order to answer this question, the following judgement critera were used[344]:

- Level of Europeans' satisfaction with EU action on nature protection.
- Level of Europeans' support for EU inaction on nature protection.
- Level of Europeans' support for the EU only acting in support of Member State actions.
- Level of Europeans' support for the EU taking a leading role in nature protection legislation.
- Preference of Europeans for regulation vis-à-vis market approaches to nature protection in the EU.

This information will help to identify those tasks that Europeans believe belong at EU level, and those that they believe should remain within the control of Member States.

7.5.2 Main sources of evidence

The main sources of evidence are Eurobarometer surveys of EU public opinion (designed to be representative) on the Nature Directives in particular, but also on biodiversity and the environment more broadly. These sources provide robust evidence, as they are surveys that are representative of the population at EU, national or sub-national level and therefore have statistical value. The Eurobarometer provides a broader perspective, valuable in the context of the Nature Directives. Two studies carried out at national level (UK and France) were also reviewed. Responses to evidence gathering questionnaires (although there were limited responses of stakeholders to this question) and the online public consultation provided further sources of evidence.

Box 97 Eurobarometer

Eurobarometer is a series of surveys of public opinion financed by and conducted on behalf of the European Commission. They address a wide array of topics related to the European Union throughout the Member States[345].

The standard Eurobarometer was established in 1973. Each survey is made up of about 1,000 face-to-face interviews per Member State. Reports are published twice every year[346].

Special Eurobarometer reports are based on in-depth surveys on specific themes carried out for the

[343] The term 'EU citizens' is understood in a broad, non-technical manner to refer to all natural or legal persons that have EU citizenship, registered residence or seat in a Member State of the EU (whether they are currently within the EU territory or not), as well as any other person present in the territory of the EU. The term 'Europeans' is preferred in this review, as it does not evoke issues of citizenship and has a broader meaning of 'characteristic of Europe or its inhabitants', or 'relating to the European Union' (www.oxforddictionaries.com).
[344] The order in which judgement criteria are listed does not imply an order of priority or different weighting being attributed to the cited criteria.
[345] https://en.wikipedia.org/wiki/Eurobarometer accessed 17.02.16
[346] http://ec.europa.eu/public_opinion/description_en.htm accessed 17.02.16

European Commission or other EU institutions[347].

7.5.3 Analysis of the question according to available evidence

7.5.3.1 EU studies

A 2014 survey of European public opinion found that the majority of Europeans (60%) think that environmental decisions should be taken jointly between national governments and the EU[348]. This finding indicates Europeans' support for joint action at EU level. However it does not clarify whether the EU should only act in support of Member States (third judgement criterion) or rather take a leading role in nature protection legislation (fourth judgement criterion)[349]. In contrast, about one-third (36%) believes that only national governments should take such decisions, and that therefore the EU should not act on environmental protection (relevant for the second judgement criterion).

The same study shows that a significant majority of Europeans (77%) believe that EU environmental legislation is necessary to protect the environment in their country[350]. This fulfils the fourth judgement criterion, concerning Europeans' support for the EU taking a leading role in nature protection.

The proportion of Europeans who think that the EU should be able to assess compliance with environmental laws in Member States is a majority view everywhere, with highs of 92% and 91% in Cyprus and Spain, and lows of 66% and 59% in the UK and Denmark, respectively[351].

Seven out of 10 (70%) Europeans surveyed stated that their national governments are not doing enough to protect the environment, with about one- fifth (21%) stating that they are doing about the right amount, and an extremely small number (1%) believing that they are doing too much.

A majority of Europeans (56%) think that the EU is not doing enough, thus suggesting some dissatisfaction with EU action on nature protection (first judgement criterion). Nearly one-quarter (23%) believes that the EU is doing about the right amount, and a tiny minority (1%) think it is doing too much. A sizeable minority (18%) stated that they do not know.[352]

When it comes to instruments used to tackle environmental problems, Europeans think that the most effective tool is imposing heavier fines on offenders (40%), followed by providing financial incentives to industry, business and citizens (33%), and information on environmental issues to the public (31%). Less than one-third cite better enforcement of environmental legislation (30%) or the introduction of stricter environmental laws (25%) as solutions[353]. In particular, the proportion of people considering better enforcement of existing laws to be the most effective way to protect the environment was highest in Hungary (38%) and lowest in Denmark (15%). It was also the least supported option in four countries (Denmark, Estonia, France and the Netherlands). The percentage of people who viewed the introduction of stricter laws as most effective was instead highest

[347] http://ec.europa.eu/public_opinion/description_en.htm accessed 17.02.16
[348] http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf accessed 17.02.16
[349] The question asked in the survey was 'When it comes to protecting the environment, do you think that decisions should be made by the (NATIONALITY) Government or made jointly within the EU?'. The wording of the question does not clarify whether 'joint action' means action by Member States coordinated at supranational level, or action spearheaded by EU institutions.
[350] http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf
[351] http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf
[352] http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf
[353] http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

in the Netherlands (29%) and lowest in Romania (11%). This was the least supported option in 22 Member States[354].

Another survey of EU public opinion carried out in 2015 on the attitudes of Europeans towards biodiversity provides information on the measures that the EU should take to protect biodiversity[355]. The main findings are presented in the table below. The high support for expanding the areas where nature is protected (89%) and for strengthening existing nature and biodiversity conservation rules (88%) is particularly important for the purposes of this study. However, there is no significant difference in the levels support for regulatory approaches (e.g. expansion of nature protection areas, better implementation of nature and biodiversity conservation rules) and market-based instruments (e.g. compensation for damage to nature, innovative forms of financing for nature conservation). This is relevant for the last of the judgement criteria applied to answer this evaluation question.

This finding may appear to be inconsistent with the result above that only 25% of Europeans support the introduction of stricter environmental laws. However, the results of this survey give an indication of the *relative* support for different instruments among respondents. In particular, respondents were asked to select the two instruments that they believed would be most effective in tackling environmental problems. The 2015 survey, instead, gives insight into the *absolute* support of respondents for each of a number of measures. In this case, respondents had to state their level of agreement with each of those measures, without being limited to selecting only two among them, or expressing any opinion as to their relative effectiveness.

The proposition (supported by 91% of Europeans) that subsidies to sectors such as agriculture and fisheries should consider biodiversity, is also relevant to coherence between the Nature Directives, as well as measures in other policy areas.

Table 36 Measures that the EU should take to protect biodiversity, according to Europeans[356]

Measures that the EU should take to protect biodiversity	Totally agree	Tend to agree	Total
Better inform citizens about the importance of biodiversity	61%	32%	**93%**
Ensure that biodiversity concerns are taken into account when planning new infrastructure investments	55%	37%	**92%**
Better implement existing nature and biodiversity conservation rules	55%	37%	**92%**
Restore nature and biodiversity to compensate for damage caused by human activities or infrastructure outside protected areas	54%	37%	**91%**
Make sure that subsidies to agriculture and fisheries do not harm biodiversity	54%	37%	**91%**
Expand the areas where nature is protected	51%	38%	**89%**
Promote research on the impact of biodiversity loss	48%	41%	**89%**
Strengthen existing nature and biodiversity conservation rules	50%	38%	**88%**
Allocate more financial resources to nature protection in Europe	47%	41%	**88%**
Create innovative forms of financing for nature conservation	46%	41%	**87%**

[354] http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf

[355] http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091

[356] Author's presentation of data in http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091. Data presented in this table are those for two of the five possible responses – 'totally agree', 'tend to agree', 'tend to disagree', 'totally disagree', 'don't know' – reported in the source.

7.5.3.2 National studies

While the literature reviewed provided useful information about Europeans' expectations with respect to the environment in general, only limited sources have investigated public sentiment within individual Member States about the role of the EU in nature protection. These sources are reviewed here.

The Review of the Balance of Competences between the United Kingdom and the European Union: Environment and Climate Change found that there is broad agreement in all sectors of society that it is in the UK's interest for the EU to have competence in the area of the environment[357]. This indicates lack of support for EU inaction on nature protection, although ethe extent of this competence was less decisive. Insofar as biodiversity is concerned, the majority indicated that the EU should primarily focus on making current rules work as well as possible and improving their implementation.

A survey was conducted in 2014 in France in advance of the election of the members of the European Parliament, commissioned by an NGO[358]. The survey reported that 57% of respondents hoped that the EU would take a greater role on environmental conservation (again relevant for the second judgement criterion), with 9% wanting a lesser role for the EU than it currently has. Three-quarters (75%) of respondents wanted the EU to move towards a development model that better allows the conservation of natural resources. A quarter (25%), however, thought that the EU had other more important priorities to pursue.

7.5.3.3 Evidence gathering questionnaire responses

Of the 112 stakeholders surveyed, 50 (45%) responded to this question. Of these, 23 were of a very general nature, or actually addressed a different issue and were excluded from the analysis. Of the 27 remaining responses, 10 (37%) came from Member State nature protection authorities, 15 (55%) from NGOs and two (7%) from the business sector.

The EU role most frequently referred to by stakeholders (17[359]) related to the responsibility to ensure proper monitoring and enforcement of the Directives.

11 stakeholders stated that Europeans place high expectations on the EU for protecting nature.

Only two suggested that the EU already has an excessive role in nature protection and should not do more.

While these responses may be relevant for several judgement criteria used to answer this evaluation question, many stakeholders indicated that most Europeans do not really make any distinction whether a policy or initiative comes from the EU or the national level, therefore their expectations are not targeted specifically at EU Institutions.

7.5.3.4 Results from the online public consultation

Although the online public consultation questionnaire did not include specific questions on this aspect of the nature legislation, it nonetheless provided some useful indications about Europeans' expectations for the role of the EU in nature conservation[360].

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[357] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284500/environment-climate-change-documents-final-report.pdf accessed 17.02.16

[358] http://www.ifop.com/?option=com_publication&type=poll&id=2642, accessed 16.12.15

[359] Responses from Member State nature protection authorities and NGOs.

[360] The issues raised by organised campaigns and other features of the online public consultation methodology are addressed elsewhere in this report.

The report on the online public consultation describes the considerable effect on the results by at least 12 identified campaigns from different interest groups. For example, about 92% of the total replies were due to the Nature Alert! campaign organised by a group of environmental NGOs (responding only to Part I of the questionnaire) while the majority of the responses to Part II responded to campaings organised by the business and private sector. While this generated an unprecedented level of interest - with more than 550,000 survey participants - the weight of each campaign and its influence on the results has not been quantified in a precise manner since not all campaigns published a list of suggested replies, and some respondents may have been influenced by campaigns without following a prescribed set of responses.

The vast large majority of respondents (93%) considered the Directives to add significant value to what could have been achieved at national or sub-national level. This data can be complemented with the information received from the open question, where many individuals (mainly interested/active in nature and environment) stated that the EU legislation is necessary and adds value over and above national legislation, supporting the idea of ethe EU taking a leading role in nature protection legislation. These individuals do not want to see the Directives abolished.

In contrast, most (70%) business respondents stated that the Directives added no value at all, which relates to the first judgement criterion, on Europans' support for the EU not acting on nature protection. This data may be complemented by the results of the open question, in which many respondents from the business sector (agriculture and forestry, as well as fisheries and hunting and construction) stated that the Directives do not take enough account of regional and local circumstances or socio-economic considerations.

This divergence in opinions is confirmed by the answers to the question of whether there remains a need for EU legislation to protect species and habitats. As before, while the overwhelming majority of respondents (98%) replied positively, when broken down by sector, the majority of the business sector (63%) disagreed. These opinions are relevant for several of our judgement criteria, namely the second (Europeans' support for EU inaction on nature protection) and the fourth (Europeans' support for the EU taking a leading role in nature protection legislation). Here, the business sector was divided, with respondents active in the fields of agriculture and forestry, fisheries and hunting providing negative responses (84% and 72% respectively), while others, for the most part, supporting the ongoing need for EU nature protection legislation.

7.5.4 Key findings

According to the judgement criteria listed at the beginning of this section, and the evidence reviewed to answer this question, the following key findings can be drawn:

- The majority of Europeans (60%) believe that environmental decisions should be taken jointly between national governments and the EU, while a little over one-third (36%) believe that only national governments should take such decisions. A significant majority of Europeans (77%) believe that EU environmental legislation is necessary for protecting the environment in their country.
- Most Europeans think that neither their national governments (70%) nor the EU (56%) are doing enough to protect the environment and should do more. There are, however, significant minorities who believe that both national governments and the EU are doing what they should (21% and 23% respectively).
- As to the types of instruments to be used for environmental protection, 93% of Europeans think that the EU should better inform citizens about the importance of biodiversity. Taking into account biodiversity concerns when planning new infrastructure developments and improving the implementation of existing biodiversity legislation also receive wide support (92%). The overwhelming majority of Europeans (89%) believe that areas where nature is protected should be expanded, with about as many (88%) supporting the idea of strengthening existing nature and biodiversity conservation rules.

8 Evaluation and analysis of coherence questions

Evaluating the coherence of legislation, policies and strategies means assessing if they are logical and consistent, internally (i.e. within a single Directive), with each other (i.e. between the two Directives) and with other legislation as well as with relevant policies. This includes determining whether there are significant contradictions or conflicts that stand in the way of their effective implementation or which prevent the achievement of their objectives.

In order to function effectively, the Nature Directives need to be part of a coherent, integrated framework of EU policies that support and reinforce each other and contribute to the relevant strategic objectives of the Union. Article 11 of the TFEU requires that environmental protection requirements are incorporated into 'the definition and implementation of other EU policies and activities, particularly with a view to promoting sustainable development.' This requirement has been in the Treaty since the 1987 Single European Act, when the provisions on environmental policy were incorporated. Article 3(3), Article 3(5) and recital 9 of the TFEU recognise sustainable development as a strategic objective of the EU based on balanced economic growth and a high level of environmental protection. These provisions constitute the bridge between environmental policy and all other EU policies.

The Nature Directives form part of a complex and wide-ranging framework of EU and global environmental legislation and policy. EU environmental laws and policies covering water, marine areas, climate change, and horizontal instruments (e.g. EIA, SEA and the ELD) support and reinforce the provisions of the Nature Directives in important ways, but also require coordination in order to be effective. EU and global strategies and instruments aimed at biodiversity conservation also support or complement the Directives. Most environmental policies have goals that are consistent with and complement nature protection, but the implementation in practice is more complex.

Some EU sectoral policies have the potential to threaten nature and biodiversity. Nature protection concerns should be effectively integrated into the relevant sectoral policies, but the relationship between objectives, instruments and actual outcomes can be complex and may lead to unintended negative impacts. Some EU sectoral policies govern the funding instruments which should be accessible to Member States for supporting the protection of habitats and species, including management of the Natura 2000 network. The Nature Directives also form part of the EU's approach to managing the internal market, as they create a level playing field in many sectors with regard to the costs of minimising the impacts from economic activities on species and habitats.

To assess the coherence of the Nature Directives with other relevant legislation and policies for the purposes of this study, we have looked at the aims or objectives of policies as well as how they are implemented in practice. This has considered the following:

- **Objectives**: Are the individual objectives, targets and tasks harmonious or conflicting and if so to what degree? How do the policy areas interact and what is the potential impact on nature conservation?
- **Implementation and instruments:** Are the instruments applied compatible in their focus and approach? Are incentives, timetables, scope, operational implementation and reporting obligations aligned? What measures are in place to prevent negative interactions and what has been the experience in practice over time?

This assessment focuses on providing a high-level view, to capture key inconsistencies and synergies, as well as highlight good implementation practices and note where there may be room for improvement.

8.1 C.1 - To what extent are the objectives set up by the Directives coherent with each other?

8.1.1 Interpretation and approach

This question focuses on the coherence between objectives within each Directive, and/or between objectives of the Birds and Habitats Directives. It covers not only the strategic objectives but also the specific and operational objectives presented in section 2.3 of this study (Intervention logic).

The analysis in this question provides evidence of the consistencies or inconsistencies between the objectives of the Directives that impact on their implementation. It examines if there are similarities or major differences between the Directives (in provisions, wording or structure), and whether any such differences lead to conflicts or inconsistencies in implementation that make the Directives incoherent. Each difference or similarity identified through all available sources of information is analysed in relation to the objectives of the Directives.

The judgement criteria used to frame the analysis of this question regarding the coherence of the Directives are:

- The objectives are clearly defined by the legislation. There is consensus about the objectives.
- The objectives have coherence internally and between objectives of the Birds and Habitats Directives the extent of it is based on differences or similarities (in wording, structure or approach)
- The differences lead to significant conflicts or inconsistencies in implementation affecting the Directives' objectives

8.1.2 Main sources of evidence

The first step in the analysis of the coherence between the objectives of the Birds Directive 2009/147/EC and the Habitats Directive 92/43/EEC requires reviewing the legal provisions of both Directives and the formulation of their strategic and specific objectives. This analysis is complemented by the interpretation of those provisions in literature, case law and responses to the evidence gathering questionnaires provided by stakeholders.

Key sources of information are the Guidance documents developed by the Commission interpreting key provisions of the Directives, and Guidance documents developed by Member States or associations. Publications providing an EU level overview based on comparative assessments have been prioritised.

In relation to other published literature, few studies were identified which specifically focused on the analysis of the coherence of both Directives. Where such studies exist, they have been developed mainly in response to the announcement of the Fitness Check of the Nature Directives, and include a recent study on the legal aspects of the Directives related to the Fitness Check (Day, 2015). Other publications review the interpretation of certain provisions, or examples of implementation. These are complemented by information found in national studies, or examples provided by stakeholders contributing to the evidence gathering questionnaire.

Of the 114 stakeholders who completed the evidence gathering questionnaire, 72 provided responses to this question. Most (67) considered the two Directives to be coherent. While 10 provided examples of conflicts in implementation, only five considered those problems to be due to the Directives themselves not being coherent. The different reasons are presented in the analysis below.

This question was also addressed in the online public consultation, but responses were inconclusive, with a polarisation of views according to type of interests. No explanation of the reasons for the response were possible, given that the questions were closed. While respondents from agriculture and forestry, fisheries and hunting to a large extent disagreed (mostly or totally) with the statement that the Directives are consistent with each other, respondents from environment and nature bodies, as well as industry, generally agreed mostly or entirely with this statement. No responses to the open question referred to the inconsistencies between the Directives.

8.1.3 Analysis of the question according to available evidence

8.1.3.1 The coherence of the objectives of the Birds Directive

The Birds Directive 2009/147/EC (replacing Council Directive 79/409/EEC)[361] is aimed at the general conservation of all naturally occurring birds in the wild state in the European territory of the Member States to which the Treaty applies. It establishes a system based on site protection measures and species protection measures - including the requirement to assess the impacts of activities, plans and projects - which are coherent for the achievement of the Directive's objective. This system addresses aspects of conservation, including safeguards for habitats, controls on trade and hunting, and promotion of research (European Commission, 2008a)[362].

It also 'covers the protection, management and control of these species and lays down rules for their exploitation[363].

The scope of the Directive covers all bird species that occur naturally in the Member States, including accidental visitors (e.g. those in their migration routes). It does not cover introduced species, except where they are explicitly mentioned in one of the annexes to the Directive, or when introduced species in one Member State are native to another Member State (European Commission, 2008a).

The Birds Directive requires Member States to take the requisite measures to maintain/adapt the population of all bird species referred to in Article 1, at a level which corresponds to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements[364].

The system established by the Birds Directive comprises site protection measures (mainly Article 4), complemented by the application of Article 6 of the Habitats Directive on site protection from the impacts of plans, projects and developments and species protection measures (mainly Articles 5, 7 and 9), seems coherent for the achievement of the Directive's general objective stated under Article 2. Those meansures are supported by research on habitats and species and reporting requirements (Articles 10 and 12). No evidence has been identified either in the literature or from stakeholders' responses that points to inconsistencies or significant conflicts between the different objectives of the Birds Directive.

The assessment of the internal coherence of the Birds Directive is also based on the relevant rulings by the European Court of Justice (CJEU), establishing the hierarchy and links between the different provisions.

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[361] The 2009/147/EC Directive is a codified version of Directive 79/409/EEC and aimed to consolidate the amendments introduced over the years.
[362] Guide to sustainable hunting under the Birds Directive. Council Directive 79/409/EEC on the conservation of wild birds, European Commission, 2009.
[363] Article 1 of Directive 79/409/EEC.
[364] Article 2 of Directive 79/409/EEC.

Article 2 of the Birds Directive sets the frame for the interpretation and application of the rest of the provisions, ensuring internal coherence. The CJEU case law refers to the relationship between Article 2 and Article 7 of the Birds Directive, and specifically to the question of whether or not this article comprises a derogation from the general protection requirements of the Directive (European Commission, 2008a) for economic considerations. The Court states in case C-247/85 Commission v. Belgium and case C-435/92 *Association pour la protection des Animaux Sauvages and others* that Article 2 does not constitute an autonomous derogation from the general system of protection, but, rather, shows that the Directive takes into consideration both the necessity for effective protection of birds and the requirements of public health and safety, the economy, ecology, science, farming and recreation. Article 2 sets the frame for the entire Directive, and all provisions should be interpreted accordingly.

Article 5 of the Birds Directive requires Member States to ban the deliberate killing or capture of all species of wild birds by any method, as well as their deliberate disturbance. Similarly, Article 8 prohibits the use of large-scale non-selective means of bird killing or with the capability to cause the local disappearance of a species, in particular for Annex IV a) species. Several elements of flexibility, however, are included. For example, it allows for the exploitation of Annex II listed birds, within the conditions of national legislation respecting the principles and criteria set out in Article 7 of the Birds Directive. The practice has to comply with the principles of wise use and ecologically balanced control of the species, particularly population level, taking into account the geographical distribution and reproductive rate. Hunting of Annex II listed bird species should be prohibited during reproduction season. In addition, Article 9 enables Member States to grant derogations to the prohibitions under Articles 5 and 8 where there is no other satisfactory solution and for specific reasons, such as public health and safety interest or the protection of flora and fauna. The permit has to be granted on a selective basis, with supervised conditions for the judicious use of certain birds in small numbers.

In case C-262/85, Commission v. Italy the CJEU confirms the coherence between Article 7 and Article 9(1) which allows Member States to derogate from the general scheme of protection in a more extensive manner than that provided for in Article 7. However, such derogation must comply with the three conditions of Article 9: firstly, the Member State must restrict the derogation to cases in which there no other satisfactory solution (reiterated in other cases such as C-10/96, ASBL); secondly, the derogation must be based on at least one of the reasons listed exhaustively in Article 9(1) a), b) and c); and thirdly, the derogation must comply with the precise formal conditions set out in Article 9(2), which are intended to limit derogations to those that are necessary, supervised by the Commission.

On several occasions the Court has referred to the interpretation and implementation of the derogation under Article 9(1)c) which needs to be applied on a 'strictly controlled and selective basis so that the birds in question are captured in only small numbers and in a judicious manner. In this respect, it is apparent from Article 2 of the Birds Directive, in conjunction with the 11th recital of the preamble to the Directive, that the criterion of small quantities is not an absolute criterion but rather refers to the maintenance of the level of total population and to the reproductive situation of the species concerned'[365].

The Birds Directive, therefore, sets up a coherent legal framework for the achievement of its objectives. No evidence was identified either in the literature or by the stakeholders pointing to inconsistencies within the Birds Directive.

[365] C-252/85, Commission v. France.

8.1.3.2 The coherence of the objectives of the Habitats Directive

The Habitats Directive 92/43/EEC[366] aims 'to contribute towards ensuring biodiversity through the conservation of natural habitats and of species of wild fauna and flora in the European territory of the Member States to which the Treaty applies'. This overarching objective provides the framework for specific objectives to set a system for the conservation of habitats and species in the EU.

Examining the provisions of the Directive itself, and, in particular, the literal interpretation of Article 2(1), indicates that the Directive does not itself aim to ensure biodiversity, but, rather, to contribute to it, together with other legal and policy instruments which have an impact on the achievement of biodiversity objectives. (see sections 5.1 and 7.1 for a further discussion of the pressures on biodiversity and the need for integration between the Nature Directives and other policies in order to address the threats faced by habitats and species.)

The preservation of biodiversity is a policy objective of the European Union and goes beyond the Habitats Directive (M. Clément, 498 (Born et al, 2015))[367]. The Member States' obligation of results defined by the Directive relate to the preservation of European nature. It is 'not possible to identify in the text of the Directive a clear indication that if the conservation status of a species is declining, then the Member State has not fulfilled its obligation (M. Clément, 498 (Born et al, 2015))[368]. The obligation of results applies to the necessary measures that Member States are required to take, such as the establishment of the Natura 2000 network[369].

The scope of the Habitats Directive does not cover all natural habitats and wild species existing in EU Member States territory. The natural habitat types of Community interest covered by the Directive are those listed in Annex I of the Habitats Directive, while the wild species of Community interest covered by the Directive are listed in Annexes II, IV or V. Several stakeholders have referred to this as a limitation linked to the procedures to update the Annexes but have not highlighted it as a problem of internal coherence[370]. They raised the evolving conservation status of certain species which might require different protection measures, or the lack of protection at EU level of certain species that are important at national level.

The general objective of the Directive requires Member States to adopt measures designed to maintain or restore, at Favourable Conservation Status, those natural habitats and wild species of Community interest[371]. This provision also requires that those measures take into account economic, social and cultural requirements[372].

The concept of Favourable Conservation Status is defined both in relation to habitats and to species. The Directive establishes a system based on the adoption of site protection measures, species protection measures and different supporting measures, each intended to ensure the Favourable Conservation Status of the habitats and species concerned. Those measures correspond to specific and operational objectives of the Directive and include:

- The establishment of a coherent Natura 2000 Network of special areas of conservation (SACs).
- The adoption of conservation measures for the SACs (Article 6(1)).
- Avoidance of any deterioration of habitats and disturbance of the species in SACs for which the areas have been designated (Article 6(2)).

[366] Article 2(1) of the Habitats Directive.
[367] P.11.
[368] P.12.
[369] P.13.
[370] Other public authority Malta, nature authority Spain.
[371] Article 2(2) of the Habitats Directive.
[372] Article 2(3) of the Habitats Directive.

- Conditions for authorising plans and projects likely to have a significant effect on SACs, including Appropriate Assessment (AA) of impacts of such activities (Articles 6(3) and 6(4)).
- The establishment of a system of strict protection of species.
- Prohibition of killing, capture (including hunting) of species (Article 12).
- Derogation of the prohibitions based on the conditions and procedures established under Articles 14 and 16.

This system, based on site protection measures and species protection measures, seems to be coherent for the achievement of the Directive's biodiversity conservation objectives. The principal measures of the Directives - species conservation, designation of protected areas, establishment of conservation measures and measures to protect Natura 2000 sites from the impacts of plans, projects or new developments - are likewise coherent, and there are no significant conflicts.

The coherence of the site protection measures and species protection measures is well described in the Commission Guidance document 'Managing Natura 2000 sites'[373]. The protection of species under Articles 12, 13 and 14 is not geographically limited but covers certain plant and animal species which also figure in Annex II of the Directive, and therefore benefit from the provisions of Article 6 providing for site protection measures within the Natura 2000 sites hosting those species. As a consequence, an action may at the same time fall within the scope of both chapters. However, certain species of plant and animal covered by Articles 12, 13 and 14 do not figure within Annex II. Thus, they do not benefit directly from site conservation and protection within Natura 2000. In brief, Article 6 is concerned with site conservation and protection, while the chapter on protection of species is more focused on the species, inside or outside Natura 2000 sites.

No evidence has been identified, either in the literature or from stakeholders' responses, that pointed to inconsistencies or significant conflicts between the different objectives of the Habitats Directive. Some evidence gathering questionnaires from nature authorities (Estonia, Germany, Romania) and NGOs (Poland) refer to the internal coherence of the system designed by the Habitats Directive and highlight in particular, its clear concept outlining the interrelations between the objectives (Article 2), measures (Articles 4, 6, and 12), and assessment of targeted habitats and species through the monitoring and reporting requirements (Articles 11 and 17), each of which is linked to the definitions in Article 1.

The role of the CJEU has been instrumental in ensuring the coherence of the Habitats Directive system, establishing the hierarchy and links between the different provisions. It has re-stated that taking into account economic, social and cultural requirements as well as regional and local characteristics mentioned in Article 2 of the Habitats Directive when establishing the initial list of candidate SCIs, could jeopardise the overall objective of achieving a coherent European ecological network of SACs established under Article 3 and 4 of the Habitats Directive (*Stadt Papenburg* case, C-67/99 Com. V. Ireland; C-71/99 Com. v Germany; C-220/99 Com. V. France or C-117/03 '*Dragaggi and others'*)[374] [375] [376] [377] [378].

In these cases the Court establishes that the protective measures established under Articles 6(2), (3) and (4) of the Habitats Directive are required for those sites on the list of sites selected as SCIs. However, the coherence of the system requires Member States to ensure a certain level of protection for those sites eligible for designation as SCIs and, therefore, those sites should be subject to 'protective measures that are appropriate in

[373] Commission Guidance document: Managing Natura 2000 sites, accessible at: http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm accessed 17.02.16
[374] Case C-226/08, Sdadt Papenburg v. Germany [2010] ECR I-131.
[375] Case C-67/99, Commission v. Ireland [2001] ECR I-05757.
[376] Case C-71/99, Commission v. Germany [2001] ECR I-05811.
[377] Case C-220/99, Commission v. Germany [2001] ECR I-05831.
[378] Case C-117/03, *Dragaggi and others* [2005] ECR I-00167.

light of the Directive's conservation objective, for the purpose of safeguarding the relevant ecological interest which those sites have at national level' (*Dragaggi and others*).

The consistency of the preventative and protection measures in Natura 2000 sites is also ensured by the CJEU, which established that Member States' obligations to adopt measures preventing deterioration and disturbances that are significant in relation to the objectives for which the SACs are designated[379], requires not only the adoption of measures intended to avoid external man-caused disturbances (Article 6(2) of the Habitats Directive) but also to prevent developments that may affect the conservation status of species and habitats in SACs under Article 6(3). The Court stated that Article 6(2) and 6(3) of the Habitats Directive target the same result (*Waddenzee case*)[380].

The assessment of the reviewed literature, the evidence from the stakeholders' questionnaires and the jurisprudence of the CJEU allows the conclusion that the Habitats Directive sets up a coherent legal framework for the achievement of its objectives.

8.1.3.3 The coherence of the general objectives of the Birds and Habitats Directives

8.1.3.3.1 Coherence of the aims, general objectives and scope of the Directives

The Birds Directive's aim relates to the conservation of all species of naturally occurring birds in the wild in the European territory of the Member States. Similarly, the Habitats Directive aims 'to contribute towards ensuring biodiversity through the conservation of natural habitats and of species of wild fauna and flora in the European territory of the Member States to which the Treaty applies'. A recent study (Day, 2015) found the general aims of both Directives to be consistent.

To a certain extent, the interpretation of these objectives by the CJEU underlines the importance of an international approach to nature protection[381]. Stakeholders (e.g. NGOs from Greece and Ireland) stated in their evidence gathering questionnaires that the Directives are a key instrument supporting the EU's global leadership in the efforts to halt biodiversity loss, setting up processes that either guide or implement the growing number of multilateral environmental agreements. Generally, stakeholders have broadly recognised that the Nature Directives have led to the formation of one of the most advanced networks of protected areas in the world, the Natura 2000 network.

The Directives' aim is not to single-handedly ensure biodiversity, but, rather, to contribute to it, together with other instruments. The conservation of biodiversity is a policy objective of the EU which goes beyond the Nature Directives (see the analysis of the coherence of the Habitats Directive for specific references).

Both Directives establish a coherent system, with similar general objectives requiring Member States to adopt measures covering site and species protection, management and control of activities and laying down rules for species exploitation and derogation of species protection measures. The evidence gathering questionnaires generally considered both Directives to form a coherent legislative framework as follows:

[379] Case C-75/01, Commission v. Luxembourg [2003] ECR I-1585.
[380] Case C-127/02, Waddenzee [2004] ECR I-07405.
[381] Commission v. Belgium (case 247/85), the Court, following the recital 4 in the preamble of the Directive, noted that the Directive is based on the consideration that effective bird protection is typically a transboundary environment problem entailing common responsibilities for Member States.

Box 98 Views of the stakeholders on coherence between the Directives

Most comments from **public authorities and NGOs at national and EU level** accept that the Directives form a coherent legislative framework with no significant differences in objectives or measures that would hamper the common aim of nature protection. Some (e.g. the Luxembourg nature authorities,) refer to their complementarity creating a coherent legislative instrument for nature conservation.

While some NGOs (Germany, Bulgaria) responses used similar wording - stating that the Directives are coherent and together create a coherent legislative framework for nature conservation with no reported significant problems with their implementation arising from the fact that they are two Directives - the evidence reflected the specificities of their countries and the comments are, therefore, considered separately.

Several NGOs at national (Belgium, Czech Republic, Germany, Netherlands) and at EU level (EEB, Butterfly Conservation Europe, BirdLife Europe) pointed to the original expectation or justification for the development of the Habitats Directive, which was initially conceived as a step to build on the foundations laid by the Birds Directive. It was repeatedly stated that the original choice of expanding the scope of the Birds Directive through a complementary piece of legislation, rather than repealing and replacing it, has been amply vindicated, with the two Directives representing one coherent framework. German NGOs' consultation of experts in the field (i.e. professors, site managers or members) did not provide any evidence of inconsistencies between the objectives that negatively impacted on the coherence of the Directives.

Several **public authorities** (Belgian authorities, Finland nature authorities, nature authorities from the Netherlands, Luxembourg and Malta) recognise that although there are differences in the wording and approach between the two Directives, they can generally be considered to be sufficiently coherent, as both strive for the conservation of habitats and wild fauna and flora species. It is recognised that the complementarity of the Directives has resulted in a coherent system for nature conservation. The objectives set out by each Directive result in an effective set of measures for the protection of the environment and the creation of a coherent network of protected areas.

Most **private sector** EU level stakeholders responding to this question (e.g. Cembureau, Euromines, Eustafor, FACE) considered the Directives to complement each other, stating that their objectives are fully consistent and, together, create a coherent legislative framework for nature conservation. However, some of them point to coherence issues in implementation at project level regarding conflicting conservation objectives (e.g. protection of European Beaver vs. protection of certain habitats in decline due to beaver activity, particularly in lowland forests). This is confirmed at national level (e.g. Finnish farmer and forest owners' organisations). However, the examples provided do not relate to the coherence between the Directives but rather between different species or habitats in the same site. They relate to the national or local choice of management measures to ensure the protection of the different habitats or species.

The **scope of the Directives** is referred to as one of the main differentiating elements by several public and nature authorities (e.g. Belgium, Bulgaria, Denmark, Estonia, Netherlands, Spain) and some EU level organisations, such as FACE.

Under the Birds Directive, all wild birds (species of naturally occurring birds) are protected, while the Habitats Directive only applies to the species and habitat types considered to be of Community interest and listed in the Annexes. The Birds Directive thus has a more holistic protection scope. Most stakeholders acknowledged that the difference would not create inconsistencies that would have a significant negative impact on the implementation of the Directives. Others, however, such as nature authorities in the Netherlands, stated that the scope of the Birds Directive means that, in practice, species protection measures need to be adopted for all bird species, including those that are not threatened in any way. This raises difficulties in implementation, such as solutions to the nuisance of gulls and pigeons in cities. This statement does not take into account the flexibility provided by the Directive for granting derogations for those species not in need of protection. The Estonian Ministry of Environment states that the problems that could be generated (mainly in agriculture or forestry activities) by an overly rigid interpretation of the Directive, can be solved with national implementation measures promoting sustainable management practices in agriculture and forestry. By contrast, the Spanish na-

ture authorities stated that the holistic scope of the Birds Directive is more easily understood by the general public, making it easier to enforce.

8.1.3.3.2 The concept of Favourable Conservation Status

The Habitats Directive requires Member States to take measures to maintain or restore, at Favourable Conservation Status natural habitats and species of Community interest. This concept was used for the first time in EU environmental legislation by the Habitats Directive and defined for both habitats and for species in its Article 1 (see section 2.3). The applicability of Favourable Conservation Status to the Birds Directive has been recognised by different sources of literature based on the interpretation of the Directives' provisions. The Guide to sustainable hunting under the Birds Directive (European Commission, 2008a) states that the overall objective of the Directive is the maintenance of bird population at a Favourable Conservation Status. The Guide explains that while the term 'Favourable Conservation Status' is not explicitly mentioned in the Birds Directive, it is implied in the requirements of Article 2.

The same conclusion is reached by (Day, 2015) which states that while 'the Birds Directive does not recognise the achievement of favourable conservation status (FCS) of habitats and bird species as an objective, this obligation has been considered analogous to the objective to maintain or adapt the population of species at the level that corresponds to the ecological, scientific or cultural requirements while taking into account the economic and recreational requirements'. Another argument mentioned by (Day, 2015) considers SPAs to be part of Natura 2000, whose objective is to enable habitats to be maintained or restore at a Favourable Conservation Status in their natural range (Article 3(1) of the Habitats Directive). Therefore, Favourable Conservation Status is also an objective of the SPAs under the Birds Directive.

At a practical level, however, this might not yet be fully implemented as Favourable Conservation Status targets (or reference values) have not been set for birds. Stakeholders from infrastructure development and extractive industry sectors recognise that both Directives require the achievement of Favourable Conservation Status as a long-term objective and are, therefore, coherent. However, they point to conflicts of implementation of this objective in relation to the authorisation of development projects under Article 6(3) of the Habitats Directive (see sections 5.3 and 8.2)[382].

8.1.3.3.3 The consideration of socio-economic factors

Both Directives explicitly require Member States to take socio-economic factors into account when implementing the Directives. Recital 6 and Article 2 of the Birds Directive and recital 3 and Article 2(3) of the Habitats Directive recognise these as part of the Directives' objectives.

Some stakeholders from the private sector (i.e. Latvian farmer representatives) and from Latvian NGOs consider the concept of sustainability to be included in both Directives through the requirement for Member States to ensure the Favourable Conservation Status of species and habitats while 'taking into account economic, social and cultural requirements'.

Other provisions, such as Articles 6(3) and 6(4) of the Habitats Directive in relation to SPAs and SACs, or Article 16 of the Habitats Directive and Article 9 of the Birds Directive in relation to species protection measures, are designed so that socio-economic factors are considered when implementing the Directives.

[382] This group of stakeholders states that while this objective is achievable even after development projects are authorised according to Article 6 of the Habitats Directive, certain authorities - mainly at local level - do not always allow these projects to be carried out. This is mostly linked to an alleged overuse of the precautionary principle at a local level, driven by fear of granting permits to activities that would cause irreparable damage to the Favourable Conservation Status of biodiversity, leading to NGO challenges at national or EU Courts.

The CJEU has recognised on several occasions (i.e. case C-247/85 Commission v. Belgium; Leybucht case C-57/89; case C-435/92 *Association pour la protection des Animaux Sauvages and others*) that the objective under Article 2 'the protection of birds' must be balanced against other requirements, such as those of an economic nature. Therefore, although Article 2 does not constitute an autonomous derogation from the general system of protection, it nonetheless shows that the Birds Directive takes into consideration both the necessity for effective protection of birds and the requirements of public health and safety, the economy, ecology, science, farming and recreation.

However, the CJEU has ruled on several occasions that economic, social and cultural requirements or regional and local characteristics cannot be taken into account when selecting and defining the boundaries of Natura 2000 sites. For example, the Court required in the UK 'Lappel Bank' Case C-44/95 that ornithological criteria stated in the Birds Directive under Article 4(1) and (2) should be used for designating and setting the boundaries of SPAs. Also in relation to SPAs, in cases C-371/98 UK, First Corporate Shipping and C-67/99, Commission v. Ireland, the Court reiterated that a Member State may not take account of economic, social and cultural requirements or regional and local characteristics, as mentioned in Article 2(3), when selecting and defining the boundaries of the sites to be proposed to the Commission as eligible for identification as SCIs.

The Nature Directives do not establish a system whereby all development projects or socio-economic activities affecting a Natura 2000 site are forbidden. Rather, those projects or activities may be carried out if they do not undermine the conservation objectives defined under Article 6(1) of the Habitats Directive. In addition, Article 6(3) of the Habitats Directive requires any plan or project likely to affect the Natura 2000 sites to undergo AA before authorities can approve it. In the Waddenzee Case C-127/02, Case C-304/05 Commission v. Italy, and Case C-404/09 Commission v. Spain, the Court clarified that an assessment would be considered appropriate when it is based on 'complete, precise and definitive findings' and 'in light of the best scientific knowledge'. The Court establishes that the precautionary principle is applicable in the framework of Article 6(3) of the Habitats Directive, stating that only where no reasonable scientific doubts remain about the absence of an impact on the Natura 2000 site, can the activity go ahead.

The Court's interpretation of how the economic factors are to be taken into account when implementing the Directives is consistently applied to both Directives. However, some stakeholders from the private sector at national level, such as Energy UK, and at EU level (Eurelectric) consider that a too-strict implementation of these requirements is inconsistent with the implementation of the 'sustainable development' principle represented by recital 3 and Article 2(3) of the Habitats Directive and recital 5 and Article 2 of the Birds Directive.

The objective to take into account socio-economic considerations is implemented through Article 6(4) of the Directive, enabling the development of damaging projects if justified on imperative reasons of overriding public interest (IROPI). The Court states in case C-239/04 Commission v. Portugal, that this Article is derogation from the general criterion laid down in Article 6(3) establishing that projects affecting the integrity of the site cannot be authorised. It must, therefore, be strictly interpreted, with authorisation subject to the condition of demonstrating the absence of alternative solutions. This provision applies to both Directives, and similar rules are applicable to projects or activities affecting SPAs, SCIs or SACs.

8.1.3.4 Coherence of specific objectives

8.1.3.4.1 Establishment of the Natura 2000 Network

Both Directives require the establishment of a coherent network of protected areas – the Natura 2000 network - based on the identification and designation/classification of SPAs or SACs (Day, 2015). While Natura 2000 is established by the Habitats Directive, which states in its Article 3 that 'a coherent European ecological network of special areas of

conservation shall be set up under the title Natura 2000, the Birds Directive requires that the designated SPAs form a 'coherent whole which meets the protection requirements' of the bird species.

Stakeholders from all sectors, whether nature authorities, public authorities, NGOs or private interest associations, all recognised that the two Directives have led to the formation of one of the most advanced networks of protected areas in the world. Some highlighted that the objectives set out by each Directive result in a coherent set of measures for the creation of a network of protected areas, while others pointed to the fact that the Natura 2000 Network covers both SPAs from the Birds Directive and SACs from the Habitats Directive.

However, both Directives follow a different **designation process**. The site designation process under the Habitats Directive is based on the scientific criteria listed in Annex III and a biogeographic regional approach. Member States are required to propose a list of sites to ensure the Favourable Conservation Status of the habitats and species hosted in their national territory. Once the SCIs are identified and jointly selected by the Member States and the Commission, Member States are then required to designate them as Special Areas of Conservation (SACs).

The Birds Directive requires the classification of SPAs for bird species under Annex I and for migratory species. The site designation process is based on scientific criteria recognised by the CJEU together with the value of the Inventory of Important Bird Areas in the European Community (IBA) as a source of ornithological scientific data[383]. Based on the information provided by the Member States, the European Commission determines if the designated sites are sufficient to form a coherent network for the protection of these vulnerable and migratory species.

The requirement to classify the most suitable territories in number and size as SPAs for the conservation of birds in the geographical and land area where the Directive applies, has been subject to clarification, as the Directive did not establish a specific process and timetable. The Court established ('Lappel Bank' case C-44/95, C-3/96, Commission v. Netherlands) that the ornithological criteria laid down in paragraphs (1) and (2) of Article 4, are to guide the Member States in designating and defining the boundaries of SPAs. Member States' margin of discretion is not concerned with classifying SPAs according to ornithological criteria, but relates only to the application of those criteria in identifying the most suitable territories for conservation of the species in question. The general scheme of Article 4 of the Birds Directive requires that, where a given area fulfils the criteria for classification as an SPA, it must be made the subject of special conservation measures. The Court pointed to the IBA as a reference tool.

According to the French nature authorities, the process of site selection and designation under the Habitats Directive is more complicated, such that it leads to unnecessary administrative burden. On the other hand, the UK nature authority considers this difference in the designation procedure to create a risk of inconsistencies in the selection for SPAs across Member States, because the list of sites is not discussed in EU level biogeographical region meetings and the result is more uncertain. However, in line with the Habitats Directive, the Commission assess whether the SPAs selected in each country ensure sufficient protection for the relevant species. Similarly, the Romanian authorities believe the criteria for designating SACs to be more sound (determined in the biogeographical seminars by designating SCIs for each species and habitats in each biogeographical region) in comparison to the different scientific criteria that can be used for the designation of SPAs, given that the IBAs are not officially recognised in Romania, despite their validity having been confirmed by the CJEU. While differences exist in the selection process of both Directives and a harmonised process would facilitate implementation, there is insufficient evidence to conclude that they have led to inconsistencies between the Directives that could have affected the achievement of the Directives' objectives.

[383] For example, UK 'Lappel Bank' Case C-44/95 states that ornithological criteria – as stated in the Birds Directive under Article 4(1) and (2) - should be used for designating and setting the boundaries of SPAs.

Article 9 of the Habitats Directive provides for a mechanism to de-designate SACs as a consequence of natural developments and the results of the surveillance required by Article 11. Such a provision is not explicitly reflected in the Birds Directive although it has been applied in practice, for similar reasons. Under the Birds Directive, a Member State may exclude an area from an SPA if it no longer provides the most suitable territories for the conservation of species of wild birds within the meaning of Article 4(1) of the Directive (Case C-191/05)[384].

8.1.3.4.2 Protection/management measures in Natura 2000 sites

Article 6 of the Habitats Directive sets out the provisions which govern the conservation and management of Natura 2000 sites. Article 6(1) requires Member States to take positive actions for the establishment of the necessary conservation and management measures for each site. Article 6(2) defines a general scheme to be established by Member States in order to avoid habitat deterioration and significant species disturbance. Article 6(3) and (4) set out a series of procedural and substantive safeguards governing plans and projects likely to have a significant effect on a Natura 2000 site.

This protection regime is applicable to SACs and SPAs, the legal framework having been harmonised through Article 7 of the Habitats Directive, which states that the obligations arising under Article 6(2), (3) and (4) of the Habitats Directive shall replace any obligations arising under the first sentence of Article 4(4) of Directive 79/409/EEC in respect of areas classified in accordance with that Directive. Therefore, all sites classified, or qualifying for classification, as SPAs, or on the list of SCIs, are subject to these provisions from the date of implementation of Directive 92/43/EEC (Article 4(5) of the Habitats Directive).

Stakeholders from public authorities (e.g. Spain, Belgium) and NGOs (e.g. Ireland, the UK) recognise the effect on the coherence between both Directives brought by the fact that they both rely on the same structure and share similar key provisions, such as Article 6 of the Habitats Directive.

However, Article 7 does not refer to Article 6(1) of the Habitats Directive which requires the establishment of the necessary conservation measures for SACs, involving, if necessary, appropriate management plans specifically designed for the sites or integrated into other development plans. While this provision does not apply to SPAs, there are equivalent provisions under the Birds Directive. Article 4(1) requires Annex I species to be the subject of special conservation measures for their habitat, in order to ensure their survival and reproduction in their area of distribution and Article 4(2) provides for the adoption of similar measures for regularly occurring migratory species. The Commission Guidance document confirms that Article 4 of the Birds Directive provides for a similar approach for the management of SPAs to that set out in Article 6(1) for SACs[385]. In practice, where Member States adopt the necessary conservation measures they tend to adopt management plans for both SACs and SPAs. However, this difference has an impact on the date from which these similar provisions should, in principle, apply. SPAs are subject to management plans from the date on which the Birds Directive 79/409/EEC became applicable in the Member States ('Santoña Marshes' case)[386]. The adoption of necessary conservation measures under Article 6(1) is, according to the Court, a systematic obligation that leaves no latitude to Member States for the adoption of necessary, adapted[387] and sufficient measures[388] once sites on the list of SCIs are designated as SACs which, according to Article 4(2) of the directive SCIs must be designated as an SAC 'as soon as possible and within six years at the most'.

[384] Case C-191/05, Commission v Portuguese Republic [2006] I-06853
[385] Commission Guidance document: Managing Natura 2000 sites, accessible at: http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm
[386] Case C-355/90, Commission v. Spain
[387] Case C-508/04, Commission v. Austria [2007] ECR I-3787.
[388] Case C-293/07, Commission v. Greece [2008], ECR I-182.

The necessary conservation measures according to Article 6(1) of the Habitats Directive need to be adopted for each SAC. These must take into account the priorities established for each site according to Article 4(4) in the context of the site's importance, for example the maintenance or restoration, at a Favourable Conservation Status, of a natural habitat type in Annex I or a species in Annex II, and for the coherence of Natura 2000. Exposure of the site to the threat of degradation or destruction must also be considered. Some authorities (e.g. Netherlands) claim that implementation of those provisions in relation to Article 4(4) lead to management problems due to potential inconsistencies in the conservation objectives where SPAs and SACs overlap. The measures required to achieve objectives in a site targeting the protection of birds, for example, might conflict with measures required for other species and habitat types. This is the case, for example, when (endangered) Habitats Directive species are bulk food for birds that should be conserved (European Weather Fish and Purple Heron, or Tundra Vole and Hen Harrier), or where the objectives compete for space (e.g. geese and valuable grasslands in the river basins). The Austrian representative of farmers (COPA-COGECA) considers bird protection to be more restrictive, in practice, than species protection under the Habitats Directive, stating that the protection measures derived from the two legislations may hamper each other. The Austrian business representative from the Water/Energy sector provided an example of these potential conflicts at implementation level between the conservation objectives of SPAs for birds and SACs. In the Lower Inn river in Austria, the protection of habitats important for the breeding and refuge of birds could run contrary to other interests (e.g. protection of fish, flood control, hydropower generation).

These examples, however, do not seem to be linked to the Directives but rather show implementation problems related to the decisions required for site management. The described situation is not exclusive to overlapping SPAs and SACs, it is a general management issue which requires the setting of coherent conservation priorities. It is also possible in those sites where several Habitats Directive species co-exist in a Natura 2000 site and fall within the management choices of protected areas. The Belgian authorities point out that even if the management measures or requirements of different protected species on a specific site might sometimes be contradictory, those differences can be resolved when setting the site's conservation objectives and designing the consequent conservation measures. They stressed that the Directives offer adequate flexibility in that regard. Dutch NGOs state that no significant problems for implementation have arisen from the fact that the two Directives may differ in substance or wording. In particular, the site protection requirements are applied in an identical way to Natura 2000 sites designated under both Directives (Backes et al, 2011). In addition, Member States have the same approach for SACs and SPAs, as the criteria for setting objectives and the process for the adoption of management plans are the same.

Member States are required to adopt measures to avoid pollution or deterioration of habitats and disturbance of species in Natura 2000 sites, under both Article 6(2) of the Habitats Directive and Article 4(4) of the Birds Directive.

Member States are required to ensure that projects likely to affect a Natura 2000 site designated under both Directives, are authorised only according to the permitting provisions of Article 6(3) and 6(4) of the Habitats Directive, including an AA of their impact on the site. Several stakeholders (e.g. Belgian NGOs) point to the Commission Guidance document on Article 6 of the Habitats Directive as the crucial source explaining the linkages between both Directives and the implementation of AA[389].

Some business stakeholders (e.g. Euromines, AT COPA-COGECA, AT Industry Water/Energy sector) believe that while these provisions and derogations of both Directives are coherent and proportionate, their implementation at a national level is not always consistent. The sectoral Commission guidance is useful but is not always fully implemented at local level either because the document is not known, is not translated or because it has a non-legally binding nature. Stakeholders point to cases in France or Spain where local authorities do not grant permits to extractive mining activities that, according to the Guidance document, could have be carried out. For example, the Spanish autono-

[389] http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

mous region of Galicia prohibits open pit mining exploitations in Natura 2000 areas, and, in Murcia, any building development in the territory of a littoral Natura 2000 site is forbidden, given the existing high pressure on these areas[390]. The CJEU has reiterated Member States' discretion to adopt more stringent measures, meaning that introduction of statutory prohibitions on specific activities is not a breach of EU law provided it does not impact the functioning of the internal market[391].

While it is recognised that conflicts may arise at project level, the conservation/protection objectives of both Directives are consistent, and provide for the necessary framework to ensure that different solutions applicable to each case can be found (e.g. Austrian transport authorities' evidence gathering questionnaires). Similarly, the Belgian authorities state that the consistency of both Directives allows for a common implementation scheme (Walloon Region).

The German nature authorities consider the Directives to provide the appropriate framework to ensure consistency of decisions related to the protection of various habitats or species which might require different type of actions and management measures. In such cases, the Directives provide the possibility to carry out assessments at area level (definition of conservation objectives and measures) to prioritise protected resources when formulating measures (e.g. forest development versus preserving open spaces). They highlight that suitable decision-making scope and criteria - including appropriate definition of the conservation status - are available.

8.1.3.4.3 Strict systems of species protection

Both Directives require Member States to establish regimes of species protection inside and outside Natura 2000 sites. While the Birds Directive requires Member States to adopt *general* species protection systems, the Habitats Directive refers to the need to establish *strict* systems of species protection. No evidence has been found to support the difference in wording raising any problem of coherence between the Directives.

Some stakeholders raise the potential for conflict between competing protection objectives for different species covered by the Directives. For example, the Irish nature authorities refer to the salmon, a very important species for tourism and recreational angling while, at the same time, subject to substantial pressure in the marine stage of its life, arguing that measures for cormorant populations would help to maximise the return of spawning fish. However, other authorities acknowledge that this is an issue related to management measures and the Directives allow for sufficient flexibility to resolve such conflicts (Belgian nature authorities). For example the implementation of sustainable management practices in agriculture and forestry can avoid potential conflicts or damages (Danish nature authorities).

Similarly, NGOs in Malta highlighted an example related to derogations granted under the Birds Directive, which have led to the Maltese Wild Bird Regulation Unit (WBRU) issuing licences for finch trapping sites during spring hunting, irrespective of their presence in Natura 2000 sites under the Habitats Directive (Annex I habitat). They consider that what could be viewed as an inconsistency in the implementation of both Directives, is actually an incorrect application of derogation at national level and arises from specific circumstances in this country.

The German representative of COPA COGECA pointed to the inconsistency between Article 5 of the Birds Directive prohibiting intentional or deliberate killing, capture or disturbance of all species of wild birds, and Article 12(1)d of the Habitats Directive, which forbids not only intentional, but also unintentional acts.

Article 5 of the Birds Directive requires Member States to ban the deliberate killing or capture of all species of wild birds by any method, as well as the deliberate destruction of, or damage to, their nests and eggs and the deliberate disturbance of those birds, and the CJEU requires that the killing, destruction or damage under the Birds Directive should

[390] Decree 37/2014 of 27 March.
[391] Case C-2/10 Azienda Agro-Zootecnica Franchini et al, [2011] ECR I-06561, p. 39-75.

be purposeful[392]. By contrast, Article 12(1)d of the Habitats Directive 92/43 does not require the acts of deterioration and destruction to be deliberate, with unintentional acts also forbidden. According to the Court, prohibiting only the deliberate damaging or destruction of breeding sites or resting places of the species concerned, does not satisfy the requirements of Article 12(1)(d) of the Habitats Directive[393]. Furthermore, in Case C-183/05[394] the Court established that Article 12(1)d) of the Habitats Directive prohibits acts that 'interfere with or destroy breeding sites or resting places of wild species',… 'whether they are intentional or not.'

However, the CJEU has harmonised the interpretation of both provisions by stating that Article 5 of the Birds Directive covers 'acts involving no intention to infringe the rules for the protection of birds' (Case C-412/85, Commission v. Germany). The Court considers the willing acceptance of deterioration sufficient to breach the prohibition under Article 5. In addition, it requires compliance with the criteria under Article 9 of the Birds Directive, stating that derogations should only be granted where there is no other satisfactory solution. This interpretation harmonises the interpretation of both provisions and confirms the proportionality of the prohibition under Article 12(1)d) of the Habitats Directive, given the importance of protecting biodiversity.

Contrary to the Habitats Directive, Article 5(1)d of the Birds Directive does not ban the deterioration or destruction of breeding sites or resting places, instead limiting the prohibition to the deliberate destruction of, or damage to, birds' nests and eggs. However, this difference seems justified by the broader scope of the Birds Directive. There is no evidence to suggest that this difference had led to any inconsistencies in implementation.

The analysis of the provisions of the Directives show that both Directives establish an enabling system for the 'exploitation' of certain species, including, for example, hunting and fishing, by granting permits limited to legal and authorised activities. Article 14 of the Habitats Directive requires the exploitation of 'huntable' species to be compatible with their being maintained at a Favourable Conservation Status. Derogations under this provision to the prohibitions under Articles 5 of the Birds Directive and Article 12 of the Habitats Directive cannot allow large-scale or indiscriminate (non-selective) means of capture, killing or disturbance, or those activities causing the disappearance of local populations.

Article 16 of the Habitats Directive clarifies the circumstances and conditions under which Member States may derogate from the requirements of Articles 12, 13, 14 and 15(a) and (b) of the Directive. First of all, derogations may be granted provided there is no satisfactory alternative and derogating is not detrimental to the maintenance of the population(s) of the species concerned at Favourable Conservation Status in their natural range. If those conditions are met, derogations may be granted if they are:

- In the interest of protecting wild fauna and flora and conserving natural habitats.
- To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property.
- In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.
- For the purpose of research and education, of re-populating and re-introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants.
- To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species listed in Annex IV in limited numbers specified by the competent national authorities.

[392] C-412/85.
[393] Case C-98/03 Commission v. Germany [2006] ECR I-00053; Case C-6/04 Commission v. United Kingdom [2005] ECR I-09017.
[394] Case C-183/05, Commission v. Ireland [2007] ECR I-00137

Similarly, Article 9 of the Birds Directive states that Member States may derogate from the provisions of Articles 5 to 8 where there is no other satisfactory solution, for the following reasons:

- In the interests of public health and safety.
- In the interests of air safety.
- To prevent serious damage to crops, livestock, forests, fisheries and water.
- For the protection of flora and fauna.
- For the purposes of research and teaching, of re-population, of re-introduction and for the breeding necessary for these purposes.
- To permit, under strictly supervised conditions and on a selective basis, the capture, keeping or other judicious use of certain birds in small numbers.

The requirements for derogation under Article 9 of the Birds Directive are stricter than those under Article 16(1)(c) of the Habitats Directive, which enables the granting of derogations for measures required for the protection of Annex IV species on the basis of **imperative reasons of overriding public interest**, including those of an economic nature. However these reasons cannot be used to justify derogations from Article 9(1) of the Birds Directive.

This inconsistency between the requirements of both provisions has been repeatedly raised (Netherlands nature authorities, Czech Republic environment authorities and German private sector). The representative of the industry sector in Germany and the nature authority in the Czech Republic argue that there is no justification for stricter protection rules being applied to birds compared to those applied to Annex IV species under the Habitats Directive.

On the other hand, NGOs in the Netherlands state that, despite the differences in wording of the derogation rules related to species protection, they are nonetheless applied in a coherent manner and have not led to major problems in practice. The NGOs refer to literature (Schoukens and Bastmeijer, 2014) which states that as this is a derogation, it has to be strictly applied and the CJEU has not yet approved derogations for this reason. It is argued that the CJEU definition of overriding public interest requires the activity for which derogation is requested to respond to interests of such importance that they can be weighed up against the Directive's nature protection objective if there are no alternative solutions[395]. The importance given to biodiversity protection in relation to other interests, which is considered by the Court to be proportional to the problem of biodiversity decline has led, in practice, to a situation similar to the Birds Directive[396]. In other words, these strict requirements allow a balanced means by which to consider economic and conservation objectives, and provide a good incentive for innovative approaches to reconcile economic aspirations with nature conservation objectives (Schoukens and Bastmeijer, 2014). Certain nature authorities (i.e. Belgium, Germany and Denmark) highlighted that while there are differences in the approaches of both Directives (mainly between Article 16 of the Habitats Directive and Article 9 of the Birds Directive), they do not lead to inconsistencies or conflicts in their implementation.

8.1.3.4.4 Measures outside protected areas

Both Directives encourage Member States to take measures outside Natura 2000 to improve the ecological coherence of the network. Article 4(3) of the Birds Directive refers to the need to take appropriate initiatives with a view to the coordination necessary to ensure that the designated SPAs form a 'coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive applies'. Article 4(4) of the Birds Directive requires Member States to strive to avoid the pollution or deterioration of habitats outside SPAs.

[395] C-239/04 Commission v. Portugal 2006 ECR I-10183; C-182/10 Solvay and Others.
[396] C-182/10.

Article 3(3) of the Habitats Directive enables Member States to improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora. Article 10 of the Habitats Directive urges Member States to endeavour to use land-use planning and development policies to improve the ecological coherence of the network and encourages the management of features of the landscape which are of major importance for wild fauna and flora[397].

8.1.3.4.5 More stringent protection measures

The Treaty on the Functioning of the European Union (TFEU) empowers Member States to go further than the requirements set out in the Directives adopted, pursuant to Article 192 (environment policy). Article 193 of the TFEU declares that the protective measures, 'shall not prevent any Member State from maintaining or introducing more stringent protective measures'. This provision was already in environmental chapter, Article 130r of the Treaty establishing the European Communities (TEC) introduced by the Single European Act in 1987 and later in Article 130t of TEC after the adoption of the Maastricht Treaty in February 1992.

In that spirit, Article 14 of the Birds Directive represents an explicit confirmation of the power of Member States to go beyond the EU environmental legislation[398]. However, it was an innovative provision in 1979 when it was adopted under the Birds Directive 79/409/EEC. The Habitats Directive has no equivalent provision, however, this omission does not raise any problem of coherence between the two Directives as the provision existed already in the Treaties when the Habitats Directive was adopted and the hierarchy of EU law gives precedence to primary legislation over secondary legislation, such as the Nature Directives. The articles of the Treaty are enough to justify any decision by Member States to exercise their discretionary power to go beyond the standards required by nature legislation and ensure the coherence between both Directives without the need for any explicit reference.

8.1.3.4.6 Introduction of alien species

Both Directives seek to ensure that the introduction of non-native species to EU territory does not prejudice local species of fauna and flora or natural habitats within their natural range.

The Habitats Directive also requires Member States to study the desirability of reintroducing Annex IV listed species that are native to their territory where this may contribute to the achievement of Favourable Conservation Status.

8.1.3.4.7 Monitoring and reporting

Both Directives place reliance on surveillance and reporting in order to ensure the objectives of the Directives are being achieved. Monitoring obligations of Natura 2000 sites are required under Article 11 and Article 14 of the Habitats Directive. While no such provision exists under the Birds Directive, the requirements of knowledge under Article 4(1) refers to the need to take into account trends and variations in population levels, implying that monitoring activities are necessary. In addition, Article 7(1) of the Birds Directive refers to population levels, geographical distribution and reproductive rate, which require knowledge on population status and trends for its implementation.

Most NGOs, (at national level, e.g. Bulgaria, Netherlands, Ireland, and at an EU level, EEB) refer to the fact that the reporting obligations and other procedures under both Nature Directives have been streamlined and harmonised through the agreement by the Ornis Committee for a new reporting scheme on a six-year basis, synchronising the tim-

[397] See recital 13 of the preamble of the Directive.
[398] Article 14 states: Member States may introduce stricter protective measures than those provided for under this Directive.

ing for reporting under Article 12 of the Birds Directive and Article 17 of the Habitats Directive, in order to avoid duplication or extra burden[399]. While each Directive establishes its own reporting framework, the DG Environment has acted in order to avoid duplication or extra burden.

This is confirmed by EU level private sector organisations (e.g. Cembureau) which refer to the fact that reporting requirements and timings have been harmonised for both Directives, even if each Directive established its own reporting framework.

However, national nature authorities (Bulgaria, Malta, Sweden) hold the view that while steps have been taken at EU level to harmonise the reporting approach, there is scope for further harmonisation and simplification in this regard. This also applies to the reporting scheme of the derogation measures under Article 9 of the Birds Directive and Article 16 of the Habitats Directive. Despite recognising the streamlining efforts undertaken by the Commission, the existence of different reporting periods is highlighted as an inconsistency that requires a solution.

8.1.3.4.8 Research

Both Directives recognise the value of necessary research and scientific work, including the exchange of information in the interests of coordination at the EU level.

8.1.3.4.9 Procedural aspects: Provision to amend the Annexes

Several nature authorities in Malta pointed to the organisational problems deriving from two separate EU legal instruments for nature conservation, each with its own comitology procedures. This, they felt, leads to a degree of complexity of coordination amongst the various departments in Member State administrations responsible for these instruments, as well as disjointed thinking and duplication of effort. However, other authorities consider the Directives to have promoted greater integration of administrations. For example, while public authorities in Cyprus refer to inconsistencies in the decisions when there are different ministries responsible for the implementation of the Directives in the early stages, they recognise that the Directives have led to an improved system of cooperation and policy development.

Evidence from some nature authorities (e.g. Denmark, Spain, Hungary, Sweden), NGOs (Latvia) and private sector (Latvian farmer representatives) justifies the internal coherence of both Directives on the basis that the transposing legislation into the national legal systems is one piece of law covering both Directives. For example, in the Flemish legislation, the provisions of both Directives have been successfully mixed and integrated into one piece of legislation. Both the site-based protection obligations and the species-based protection obligations have been merged into combined provisions, with no distinction made between Birds or Habitats Directive. The fact that this has been possible without serious judicial difficulties supports the notion of coherence between both Directives. The Spanish nature authorities argue that a legal system based on the transposition of the Directives through a single legal instrument - as per that followed in Spain - complicates implementation and enforcement, stating that merging of the Directives is not recommended.

Both Directives provide for a mechanism to review the Annexes in the light of technical and scientific progress. (For more information see section 7.2)

Some public authorities (e.g. Malta) point to examples requiring more flexibility in relation to the Annexes of the Directives. The protection of Annex II species through habitat protection is not always suitable, due to changing conditions in the conservation status, as in the case of the Elaphe Situla in Malta, which has seemingly adapted locally to urban

399 http://ec.europa.eu/transparency/regcomitology/index.cfm?do=search.documentdetail&5K404K2W+x90U5FmL1eEAfrfLn1cgkj7Mn+InW96bkwDftvKFOKx2dvStAkgOQoq

environments, leading to the belief that protection through habitat conservation is no longer adequate. Some stakeholders from the private sector (e.g. FACE, COPA-COGECA) consider the Annexes of the Directives to be poorly adapted to changes in the conservation status of species, stating that the existing mechanisms and procedures are complicated and ineffective. Furthermore, inconsistencies between the lists of species in the Annexes of the Directives and those in the appendices of some international agreements (e.g. Bern Convention) would be more easily resolved if the texts would be aligned, providing more legal certainty for the implementation of the international obligations.

Article 15 of the Birds Directive refers to the comitology procedure to adopt amendments that are necessary for adapting Annexes I and V to technical and scientific progress and that are considered non-essential elements of this Directive. The comitology regulatory procedure requires both the Committee composed of representatives of Member States and the Commission for the adoption of the decision. The scrutiny is the procedural phase by which the European Parliament has a voice in the decision. This procedure has yet to be updated to comply with the Lisbon Treaty as it does not correspond with the delegated acts established by the Lisbon Treaty for adopting non-legislative acts designed to amend non-essential elements of the Directive.

The Habitats Directive provides for a different procedure. Following a proposal from the Commission to adapt Annexes I, II, III, V and VI to technical and scientific progress, the Council can adopt a decision by qualified majority. For Annex IV, however, the Council has to act unanimously to adapt it to technical and scientific progress. While it is not clear from the text of the Directive what type of procedure is required for the adoption of amendments, the text does not refer to a legislative procedure. The current text needs to be updated to reflect the requirements for the adoption of non-legislative acts defined by the Lisbon Treaty. The current procedure does not correspond to the one required for the adoption of either delegated or implementing measures established by the Lisbon Treaty for adopting non-legislative acts. Therefore a modification of the procedure might be required before a proposal for technical adaptation of the Annexes is presented.

While both Directives provide for a different procedure for amending their Annexes, this does not have a major impact on the Directives' coherence (as they have different scope). It could, however, affect the ability of the Directives to evolve over time given the need for the participation of the Council to amend the Annexes of the Habitats Directive.

8.1.4 Key findings

Evaluating the coherence of the Directives, internally (i.e. within a single Directive) or with each other (i.e. between the two Directives) has required, firstly, a clear determination of the general and operational objectives of the Directives (intervention logic) as the basis for their comparison. Secondly, it has required the identification of similarities or differences leading to inconsistencies which would hinder the effective implementation of the Directives or prevent the achievement of their objectives.

The evidence reviewed on the basis of these judgement criteria has shown that the inconsistencies that have emerged due to differences in scope, approach or wording have largely been addressed through the rulings of the CJEU Commission guidance over the years. Other issues identified are not attributable to the Directives as refer to priorities in site or species management which can be solved with the flexibility of measures provided by the Directives.

- Both Directives have a similar system based on site protection measures and species protection measures, with specific requirements for the assessment of the impacts of activities, plans and projects. The system seems to be coherent for the achievement of each Directive's objectives.
- Both Directives are coherent in their approach to the overall aim or objective, as they do not aim at ensuring biodiversity but rather contributing towards ensuring biodiversity, together with other instruments. While the Birds Directive aims to

conserve populations of species, the Habitats Directive aims at biodiversity in a broader sense. However, there is no evidence that this difference has led to inconsistencies in implementation between the Directives.

- There is a difference in scope between the Directives, as the Birds Directive applies to all wild birds, while the Habitats Directive focuses on species and habitats of Community interest. This difference has not been considered to be a source of inconsistency between the Directives. Although some public authorities have argued that the broad scope of the Birds Directive may lead to issues of implementation for species that are not threatened, the Directives allow for flexibility (through derogations), prioritisation of management measures and promotion of sustainable management practices when setting conservation objectives or management plans.
- The Habitats Directive requires Member States to take measures to maintain or restore, at Favourable Conservation Status, natural habitats and species of European interest. Although this is not explicitly stated as an objective of the Birds Directive, its applicability is justified by the fact that the Natura 2000 network includes SPAs classified under the Birds Directive. Evidence from the literature and EU Guidance documents also state that this objective is implicit in Article 2 of the Birds Directive.
- Natura 2000 network site selection under both Directives is based on scientific criteria and evidence, as required by the Directive and clarified by the CJEU. The difference in selection procedures of the Directives has been raised by representatives of several national nature authorities as risking inconsistencies in the designation process between SACs and SPAs. However, while a harmonised process would facilitate implementation, there is insufficient evidence to conclude that the differences in procedure have led to inconsistencies between the Directives that could have affected the achievement of their objectives. Under both systems the Commission intervenes to assess whether the sites selected are sufficiently to guarantee Favourable Conservation Status.
- Similarly, no evidence was provided of any conflict deriving from the fact that the Habitats Directive provides for the possibility to de-designate SACs, something not explicitly provided for in the Birds Directive, but which has been applied in practice, for similar reasons[400].
- The protection regime for SCIs, SACs and SPAs has been harmonised through Article 7 of the Habitats Directive. While the proactive management provisions of Article 6(1) of the Habitats Directive do not apply to SPAs, Article 4(1) and 4(2) of the Birds Directive provides for a similar approach. In practice, Member States apply management plans for both SACs and SPAs although the date required for implementation is different: SPAs are subject to management plans from the date from which the Birds Directive which conservation measures for SAC should be adopted within six years of the site's placement on the list of SCIs.
- Both Directives explicitly require Member States to take socio-economic factors into account when implementing the Directives. The CJEU has confirmed that these factors do not apply in site selection, but must be considered when developing site conservation measures and assessing the impact of economic activities and development projects in relation to sites and species. Both Directives are coherent in this respect. (see sections 5.1 and 5.3 for further discussion.)
- Both Directives require Member States to establish systems of species protection inside and outside Natura 2000 sites. An inconsistency that has been raised relates to the fact that the Habitats Directive forbids not only intentional killing or disturbance of species but also unintentional acts, and is, therefore, stricter than the Birds Directive[401]. However, the CJEU interpretation confirms that Article 5 of

[400] Case C-191/05 [2006] ECR I-06853
[401] Article 12(1)(d) of the Habitats Directive.

the Birds Directive covers not only intentional acts but also 'acts involving no intention to infringe the rules for the protection of birds' (Case C-412/85, Commission v. Germany). It also confirms the proportionality of the prohibition under Article 12(1)(d) of the Habitats Directive that is not limited to deliberate acts, given that the aim of the Directive is the protection of biodiversity. Contrary to the Habitats Directive, Article 5(1)d) of the Birds Directive does not ban the deterioration or destruction of breeding sites or resting places, limiting the prohibition to the destruction of, or damage to, birds' nests and eggs. This difference seems justified by the broader scope of the Birds Directive. No evidence has been identified that this difference had led to any inconsistencies in implementation affecting the achievement of both Directives' objectives.

- The Habitats Directive enables the granting of derogations for Annex IV species on the basis of reasons of overriding public interest, including those of an economic nature, while Article 9 of the Birds Directive has no such consideration[402]. However, literature and stakeholders refer to the CJEU's restrictive interpretation of this derogation (Commission v. Finland) to support the argument that this provision has led to a balanced way to consider economic and conservation objectives, ensuring that the rules are applied in a coherent manner with no major inconsistencies in practical implementation.
- While both Directives provide for a different procedure for amending their Annexes, this does not have a major impact on the Directives' coherence (as they have a different scope). However, it could affect the ability of the Directives to evolve over time given the need for the participation of the Council to amend the Annexes of the Habitats Directive. In addition both procedures need to be updated to comply with the Lisbon Treaty as neither corresponds to the delegated acts established by the Lisbon Treaty for adopting non-legislative acts designed to amend non-essential elements of the Directive (as referred to in the Birds Directive) or to the implementing acts.

[402] Article 16(1).

8.2 C.2 - To what extent are the Directives satisfactorily integrated and coherent with other EU environmental law e.g. EIA, SEA?

8.2.1 Interpretation and approach

This question focuses on the extent to which the EU Nature Directives are coherent with and integrated into other EU environment legislation, and the extent to which they are mutually supportive. The Birds and Habitats Directives are the core legal instruments of the EU´s biodiversity policy with a general objective to protect the EU´s species and natural habitats (as indicated in the intervention logic (see section 2.3)). Their specific objectives include the establishment of protected areas which together form the Natura 2000 network and bringing the EU´s protected species and habitats into a Favourable Conservation Status[403]. Several other legal instruments to protect the environment in the EU interact with these Directives, either because of their mutually supportive objectives or because of the use of complementary instruments.

In this question we focus on coherence with the following horizontal environmental instruments:

- Strategic environmental assessment of policy plans and programmes 2001/42/EC Directive (SEA).
- Environmental impact assessment of projects 85/337/EC Directive as codified by Directive 2011/92/EU (EIA).
- Environmental Liability Directive 2004/35/EC (ELD).

All of these instruments, the Nature Directives as well as the EIA, SEA Directives, have as their operational objectives to avoid negative impacts on the environment, and in particular Natura 2000 sites, while taking account of socio-economic factors. To this end, complementary assessments of the impacts of plans and projects on the environment and nature have been developed in line with the expected outputs under the EIA and SEA Directives. The ELD, on the other hand, shares the objective of the Nature Directives to protect SACs from habitat deterioration and species disturbance and to ensure appropriate enforcement. This question was analysed according to two judgement criteria:

- the extent to which the EU Nature Directives are coherent and integrated with the EIA, SEA and ELD Directives in their content and approach; and
- the extent to which national implementation of the Nature Directives is coherent with implementation of the EIA, SEA and ELD Directives in implementation at national level.

Other areas of EU environmental policy, including water, marine, floods and climate change are addressed under question C.3 (see section 8.3).

8.2.2 Main sources of evidence

The main sources of information for this question are the responses provided in the evidence gathering questionnaire, the online public consultation, the texts of the legal instruments concerned, as interpreted by case-law, implementation reports and impact assessments, as well as the extensive literature reviewed for this analysis. This infor-

[403] Recital Habitats Directive and Birds Directive.

mation was complemented by further discussions in the focus groups and National Missions to Member States.

Many of the responses to the evidence gathering questionnaire provided only a general overall assessment of legal coherence rather than information on specific issues, with few respondents providing evidence to support their opinions on legal coherence. Of 63 replies to the evidence gathering questionnaires, only 33 answered question C.2. The literature review provided robust evidence from EU level documents, given the review process of the EIA Directive and the extensive literature reflecting the close links between these legal instruments. In addition, the case law from the European Court of Justice (CJEU) has provided a more in-depth understanding of the legal coherence of these instruments. Case law has been particularly important in interpreting certain provisions of the legal texts of the Nature Directives and the EIA Directive.

This assessment uses a number of Guidance documents prepared by the EU, as well as implementation reports and horizontal studies. Finally, some publications of national scope were used to provide information on specific issues of implementation. Very few documents explicitly address the issue of coherence between the Directives, but many cover the interactions and similarities or differences between assessment procedures.

8.2.3 Analysis of the question according to available evidence

28 of the 33 national stakeholder respondents stated that the legal framework comprising the Nature Directives, EIA, SEA and ELD Directives is coherent, with only five stating that the coherence of the legal framework overall is insufficient. EU stakeholders, overall, find the Nature Directives to be coherent with other EU environmental legislation, with a further seven (mostly environmental NGOs) also considering the legal framework to be coherent. Two business representatives stated that legal coherence is insufficient.

28 respondents stated that implementation issues at national level have affected coherence in specific situations. These respondents represent all types of stakeholders, although primarily NGOs (12 respondents) and the Member State authorities (eight respondents)[404]. The few private sector respondents that raised the issue of implementation problems highlight situations whereby the requirements have been ´excessively´ implemented. A Slovak and a UK private sector representative specifically refer to situations where national law goes beyond the EU requirements or implements them in an overly strict manner. As summarised by one stakeholder: in terms of practical implementation, much seems to depend on the attitudes, approach and cultures of those involved. Both Member States and NGOs have also noted that better coherence at national level is complicated by the distribution of the competencies across competent authorities and a lack of coordination between them. Several respondents from NGOs and Member State authorities pointed to the usefulness of guidance on the implementation of the Directives in this context, and their particular usefulness in ensuring a coherent implementation of the requirements under several Directives.

Environmental NGOs from several Member States expressed the opinion that there is a need for additional legislation in support of the Nature Directives and other EU environmental law. These respondents regularly raised the need for a Soil Directive, an EU Directive on environmental inspections and a Directive on access to justice in environmental matters. Several business representatives stated that the effects of other EU legislation, such as air emissions legislation for industrial installations and the transport sector, have contributed to the restoration of natural habitats. One business representative added that the burden from these measures should be considered when developing additional measures.

[404] Also raised by five nature conservation charities and three business respondents.

8.2.3.1 Coherence with the EIA and SEA Directives

The 2011 EIA Directive and its predecessor, Directive 85/337/EC, aimed to harmonise the principles used in the Member States for assessing the environmental impacts of certain *projects* in the EU Member States[405]. The SEA Directive provides for a high level of protection of the environment through the integration of environmental considerations into the preparation and adoption of *plans and programmes*[406]. The Directive makes the SEA mandatory for all plans and programmes prepared for the sectors listed in the Annex to the Directive and which set a framework for future development of projects, and for those which have been determined to require an assessment under Article 6(3) of the Habitats Directive[407].

As described in the intervention logic (section 2.3 of this study), Article 6(3) of the Habitats Directive is applicable to all Natura 2000 sites, not only to SCIs/SACs under the Habitats Directive but also to SPAs under the Birds Directive. Even though there is no provision under the Birds Directive, Article 7 of the Habitats Directive makes it applicable to SPAs. The expected result was therefore much more specific than the EIA Directive, as it focused on the assessment of the implications of a project or a plan in view of its conservation objectives for the site and, in particular, the potential effects on the particular habitats or species for which the site was designated. It applies to plans or projects both inside and outside the Natura 2000 network that may have significant effects on the site. Such plans or projects cannot be approved until it can be determined that they will not adversely affect the integrity of the site and, if appropriate, until after public consultation.

The EIA Directive was subject to a thorough review and amended in 2014 with a view to adapting the initial Directive in the light of the considerable policy, legal and technical evolutions.[408] The outcome was Directive 2014/52/EU, adopted to strengthen the quality of the EIA procedure and align it with the principles of smart regulation, and to enhance coherence and synergies with other Union legislation and policies (in particular the Habitats Directive), as well as strategies and policies developed by Member States in areas of national competence[409]. The reviewed EIA Directive 2014/52/EU entered into force on 15 May 2014. The analysis of its implementation thus covers a very short period. For that reason, our assessment and the evidence gathered for this exercise refer mainly to the previous version of the EIA Directive, 2011/92/EC. The changes adopted in the new Directive eliminate some of the implementation problems identified in the previous version and insert several additional measures to ensure improved effectiveness, reduce administrative complexity and increase economic efficiency by streamlining procedures under several Directives[410]. These changes will be introduced below, together with a conclusion on the impact this may have on the legal coherence between both instruments. While the SEA Directive has not yet been subject to a similar review, a report on the application of the SEA Directive is currently being prepared, which will assess potential for simplification and may lead to a REFIT evaluation[411].

Of the 32 national respondents to question C.2, 25 consider the EIA Directive to be coherent with the Nature Directives, with seven referring to a lack of coherence or to specific inconsistencies (see below). Of the four respondents representing EU organisations, all find the Nature Directives to be coherent with the EIA Directive. It should be noted that some of the comments refer to the legislation implementing the previous EIA Directive, prior to the changes introduced by the 2014 review of the Directive. One re-

[405] Recitals, EIA Directive.
[406] Article 1 SEA Directive.
[407] Recital 10 SEA Directive.
[408] Recital 2 Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
[409] Recital 3 Directive 2014/52/EU.
[410] Recitals 29, 35 and 37 of Directive 2014/52/EU.
[411] Study concerning the preparation of the report on the application and effectiveness of the SEA Directive (Directive 2001/42/EC), Tender Specifications, ENV.D.1/ETU/2015/0002r.

spondent pointed, for example, to a lack of coherence in timing and timeframes for the assessments under the EIA Directive and the Habitats Directive, while Member State representatives highlighted the need for clear links between both Directives. One other Member State authority urged the integration of assessment procedures under both Directives, whereas one business respondent stated that the EIA assessment is considerably more complex than the Appropriate Assessment (AA).

The majority of these stakeholders recognise the *complementarity* in scope and objective of the assessments under the EIA Directive and the Habitats Directive, with most inconsistencies relating to issues of implementation. Austrian NGOs, in particular, mentioned that conflicts between goals may understandably arise at the level of individual projects, although they note that there is no appreciable conflict of goals at policy level[412]. Such conflicts are then addressed in the course of the procedures, depending on the technical and legal possibilities available.

The Guidance documents with sectoral focus were identified by stakeholders as particularly useful[413].

Of the 24 national responses on coherence with the SEA Directive, 20 consider the SEA Directive to be coherent with the Nature Directives, with four referring to a lack of coherence or to specific inconsistencies. Of the four respondents from EU stakeholder organisations, all find the Nature Directives to be coherent with the SEA Directive. Several respondents from NGOs, business and Member State authorities, however, noted that the SEA in some Member States is too generic, being a mere administrative step to be taken rather than an instrument for enhancing consistency in implementation of the Nature Directives. Some Member States have developed specific Guidance documents for the preparation of the assessments to avoid this generic approach and ensure improved consistency between the SEA and the AA.

8.2.3.1.1 Objectives and scope of the EIA/SEA and AA

Article 2(1) of Directive 2014/52/EU requires that development consent for certain public and private projects likely to have significant environmental effects by virtue, inter alia, of their nature, size or location, be subject to an EIA. The projects listed in Annex I of the EIA Directive shall be subject to a mandatory EIA. Those listed in Annex II shall be subject to a screening procedure, followed by an EIA when thresholds established at national level or a case-by-case examination demand it. The EIA Directive thus ensures that environmental considerations are taken into account as early as possible in the decision-making process[414]. Article 3(1) of the SEA Directive requires an SEA to be carried out for those plans and programmes specified in paragraphs 2 to 4 which are likely to have significant environmental effects. Paragraph 2 lists the types of plans and programmes for which an SEA is mandatory, as being those for specific sectors which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC, or which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC.[415]. This means that all plans and programmes for which an AA is required shall automatically be subject to the requirement to undergo an SEA. Other plans and programmes only need an SEA when the Member State in question determines that they are likely to have significant environmental effects[416].

Article 6(3) of the Habitats Directive, on the other hand, requires any plan or project not directly connected with, or necessary to, the management of the site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, to be subject to an AA in view of the site´s conservation objectives.

[412] Evidence gathering questionnaire of the Austrian environmental NGOs.
[413] Focus groups with sector representatives.
[414] Article 6(4) of the EIA Directive.
[415] Article 3(2) of the SEA Directive.
[416] Articles 3(3) and 3(4) of the SEA Directive.

The coherence between both types of assessment has been the subject of literature and case law from the CJEU. It has also been extensively considered by the Commission during the review of the EIA Directive, which subsequently introduced amendments to improve coherence between the two procedures[417]. As mentioned in the EU Guidance document on wind energy developments, there are many similarities between the procedures for EIA, SEA and AA, but also some important distinctions between them (de Sadeleer et al, 2009; European Commission, 2000; European Commission, 2010b).

Firstly, the Habitats Directive AA is more targeted as well as less multidisciplinary than the traditional EIA or SEA (de Sadeleer et al, 2009). It is narrower in scope than an assessment under the EIA Directive, being confined to implications for the site in view of its conservation objectives (European Commission, 2000). As noted by the CJEU, the wording of the EIA Directive indicates that it has a wide scope and a broad purpose[418]. Secondly, in relation to biodiversity specifically, the SEA, EIA and AA have unique but complementary objectives and emphasis. The AA focuses solely on the impact of plans, programmes and projects on the European sites that form the Natura 2000 network, with specific attention to their qualifying interests, conservation objectives and site integrity (Gonzalez et al, 2012). By contrast, as concluded in an Irish report on integrated biodiversity impact assessment, SEA and EIA have a wide environmental focus, encompassing the assessment of potential impacts on habitats and species within and outside European sites, examining the overall implications for biodiversity as part of the wider environment (Gonzalez et al, 2012). The Commission Guidance document on integrating climate change and biodiversity into SEA notes that all aspects of biodiversity and the quality of the surroundings should be looked at in the SEA (McGuinn et al, 2013). This is in parallel to the more targeted approach of the AA, whereby the likely significant effects of the plan on the conservation objectives of a Natura 2000 site will be assessed. The Commission Guidance document also explains that an SEA considering biodiversity as a whole can be particularly supportive of Habitats Directive objectives when it avoids snapshot analyses and considers trends, because of the long timeframe to be considered in biodiversity management.

A 2013 study for DG Environment on evaluating and improving the procedure for Article 6(3) of the Habitats Directive, noted that the initial resistance to the AA – which was seen to lack a specific purpose, given the already existing EIA procedure – was lessening (Sundseth and Roth, 2013). The report stated that, in the past, problems sometimes occurred when the EIA/SEA was combined with the AA as, in these cases, the specificity of the AA was sometimes overlooked and the assessment focused too much on impacts on 'nature and biodiversity' in general rather than on those of the habitat types and species for which the Natura 2000 site had been designated (Sundseth and Roth, 2013). The online survey carried out in the framework of the 2013 study found that this was no longer a problem for 80% of respondents, and that, in most cases, the assessment of potential impacts on Natura 2000 target features and conservation objectives is analysed and reported on separately (Sundseth and Roth, 2013).

Nevertheless, the European Commission impact assessment of the proposal for a reviewed EIA Directive identified some specific overlaps between environmental assessments, resulting from either EU or national law, leading to a duplication of effort and costs for developers and for public authorities[419]. The report noted, for instance, that there could be overlaps for some of the environmental information required as part of the AA under the Habitats Directive[420]. The report also concluded that possible synergies between the various environmental assessments had not yet been sufficiently exploited (e.g. conclusions from one environmental assessment may reinforce the conclusions of another) and that this is linked to the fact that different authorities often deal with the different environmental Directives.

[417] European Commission. Impact Assessment accompanying the Proposal for a Directive of the European Parliament and of the Council amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, SWD(2012), 355.
[418] Case C-72/95, Aannemersbedrijf P.K. Kraaijeveld BV e.a. v Gedeputeerde Staten van Zuid-Holland., [1996] ECR I-05403.
[419] European Commission. SWD(2012), 355.
[420] European Commission. SWD(2012), 355.

In relation to the AA under the Habitats Directive, on the other hand, the 2013 DG Environment study noted that when transposing the Habitats Directive no Member State seems to have put in place an entirely new or distinct administrative system to deal specifically with the Article 6(3) permit procedure (Sundseth and Roth, 2013). Instead, each has tended to 'graft' the process on to already existing permit procedures (e.g. existing EIA/SEA procedures, or other forms of planning consent) which are generally designed for other purposes and often have different objectives and approaches (Sundseth and Roth, 2013).

With a view to ensuring coherence between the assessments and reducing these inconsistencies, the reviewed EIA Directive requires Member States to establish coordinated or joint procedures where assessments are required under the EIA and the Birds and Habitats Directives[421]. The new Article 2(3) of the EIA Directive requires Member States to endeavour to coordinate the various individual assessments of the environmental impact of a project required by relevant Union legislation, by designating a single authority for this purpose (coordinated procedure) and to endeavour to provide for a single assessment of the environmental impacts of a project required by Union legislation (joint procedure).

Under the SEA Directive, the organisation of coordinated or joint procedures is optional[422]. The Commission report on the application of the SEA Directive states that only a few Member States report the existence of guidance for coordination of the procedures governing assessments under other directives (COWI, 2009a). Despite this, no major problems are reported, with Member States stating that they have taken steps to avoid duplication and overlapping, mainly by means of a coordinated approach (COWI, 2009a). The same report, however, describes some concerns on the part of NGOs (COWI, 2009a). Several stakeholders noted that the increased coordination and integration between the EIA and the Nature Directives since the revision of the EIA Directive, is an important improvement in coherence of the legal framework and, in particular, the assessment procedures. One Member State, in particular, pointed out that clear links are needed between the Nature Directives and the SEA Directive, such as those developed for the EIA Directive. However, another Member State authority felt that similar integration of SEA and Nature Directives might not be achievable, as the assessments are not part of the same development consent process and are not undertaken at the same time.

The Commission is required to develop guidance on setting up coordinated and joint procedures under the EIA Directive[423]. Prior to the revisions of the EIA Directive, specific Guidance documents were prepared, aimed at streamlining the procedures for large infrastructure projects, among others. The Guidance document on ´Streamlining environmental assessment procedures for energy infrastructure projects of common interest (PCIs)(European Commission, 2013b) recommended roadmapping the different assessments from an early conceptual stage to identify the aspects to be assessed at each stage, in order to ensure complementarity and reduce the risk of repetitive assessments and to scope the assessments. It also recommended early integration of environmental assessments required under the different pieces of EU environmental legislation so that the authority and developer can build on the information in the several stages of the process (European Commission, 2013b).

Finally, the impact assessment for the review of the EIA Directive noted that EIAs tend to cover impacts on Natura 2000 sites, but that the species protection provisions are often neglected (Born et al, 2015)[424]. It states that an obligation for developers to assess impacts on biodiversity (rather than just the impacts on fauna and flora and/or the impacts on Natura 2000 sites) would be more in line with some of the actions of the 2006 EU Biodiversity Action Plan requiring that 'all EIAs should take full account of biodiversity concerns'. To resolve this, the EIA Directive was revised and now specifically requires im-

[421] Article 2(3) of the EIA Directive. These new provisions shall be transposed in national legislation by 16 May 2017.
[422] Article 11(2) of the SEA Directive.
[423] Article 2(3) of the EIA Directive.
[424] European Commission. SWD(2012), 355. Also mentioned in the EEB response to the evidence gathering questionnaire. This view is also supported by several other stakeholders.

pacts on biodiversity to be assessed, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC. This amendment is intended to enhance coherence between the EIA procedure and the species protection provisions in EU law, but it is as yet too soon to assess its impact on the consideration of protected species in the EIA procedures.

8.2.3.1.2 The definition of 'plan' and ´project´

Article 2(1) of the EIA Directive defines ´project´ as 'the execution of construction works or of other installations or schemes and other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources'. Although the CJEU has given a broad interpretation of the concept of 'construction', a purposive interpretation of the Directive cannot disregard the clearly expressed intention of the EU legislator, which establishes the limit of the interpretation of this concept (Day, 2015). The plans and programmes for which an SEA shall be required are listed in the Directive, which states that they shall be public, relate to explicitly mentioned sectors and set the framework for future development consent, or require an AA[425]. Minor modifications to such plans and programmes or small-scale local plans may be subject to a screening procedure[426]. The same applies for all other plans and programmes, although the terms 'plans and programmes' are not further defined.

The Habitats Directive does not define the concept of 'project' or 'plan'. The concepts should, however, be interpreted broadly, due to the wording of Article 6(3) which covers 'any plan or project' and the conservation objectives, on the strength of which the SACs are set up (de Sadeleer et al, 2009). The Guidance document 'Managing Natura 2000 sites' notes that a distinction needs to be made with 'plans', which are in the nature of policy statements, i.e. policy documents which show the general political will or intention of a ministry or lower authority (European Commission, 2000). It does not seem appropriate to treat these as 'plans' for the purpose of Article 6(3)(European Commission, 2000) .The World Wide Fund for Nature (WWF) Fitness Check legal assessment refers to the fact that the EIA definition has been used by national courts and the CJEU to define the concept of project in the Habitats Directive. A 2010 ruling of the CJEU condemning France for incorrect transposition of Article 6 (2) and (3) of the Habitats Directive, clarified that Member States are required to carry out AAs of impacts in Natura 2000 sites from all type of activities including fishing, aquaculture, hunting and even other hunting-related activities practiced. France was condemned because it systematically exempted these activities from the procedure of assessment, stating that they did not constitute activities causing disturbance or having an effect on Natura 2000 sites[427].

8.2.3.1.3 The requirement of 'likely significant effects'

The EIA, SEA and AA all require an assessment of the effects on the environment when 'significant' effects are likely. Projects without likely significant effects can proceed without further procedural requirements (de Sadeleer et al, 2009).

The CJEU has clarified, in the context of the AA, that 'in the light, in particular, of the precautionary principle, the probability of a risk that a plan or project will have a significant effect on a site concerned exists if it cannot be excluded on the basis of objective information that the plan or project will have a significant effect on the site concerned'[428]. As mentioned in the Guidance document for large-scale trans-boundary projects, an EIA or SEA must be carried out if there is any doubt as to the absence of significant adverse environmental effects[429]. The significance of effects is not further defined in either of the

[425] Article 3 of the SEA Directive.
[426] Articles 3(3), 3(4) and 3(5) of the SEA Directive.
[427] Case C-241/08 European Commission v. French Republic, [2010] ECR I-01697.
[428] Case C-6/04 Commission v. United Kingdom, ECR [2005] I-09017and C-418/04 Commission v. Ireland, ECR [2007] I-10947.
[429] Guidance on the Application of the Environmental Impact Assessment Procedure for Large-scale Transboundary Projects, 2013.

Directives, although the EIA and SEA Directives provide more detailed criteria in their Annexes for when a plan or project shall be considered to have likely significant effects. The Habitats Directive also provides some contextual factors to be taken into consideration when determining significance.

The EIA and SEA Directives list types of plans or projects which shall be subject to a mandatory impact assessment[430]. As such, the significant impact of the effects on the environment of such projects is presumed. Other projects shall be made subject to an impact assessment following a screening by the authorities in the Member State on a case-by-case basis[431] and for which the criteria set out in annex to the Directives must be taken into account[432]. The Habitats Directive does not contain any such criteria for assessing the likelihood of significant effects.

The WWF Fitness Check of EU Nature legislation outlines a number of changes which have been introduced by the 2014 EIA Directive in relation to screening, including the requirement to assess the impact of the whole of the project on the environment (Day, 2015). Competent authorities are now required to specify the information they will require from the developer in order to determine whether or not a project must be subject to an EIA, to identify the most relevant criteria to be considered and to take account of information available from other assessments required by EU legislation (Day, 2015).

For the AA, the significance of the effects needs to be determined in relation to the particular characteristics and environmental conditions of the site concerned by the plan or project, taking particular account of the site's conservation objectives (SCOs) (European Commission, 2000). De Sadeleer mentions that the CJEU has developed this in the Waddenzee case[433]: a plan or project is deemed not to entail significant effect where 'it is considered not likely to adversely affect the integrity of the site concerned and, consequently, not likely to give rise to deterioration or significant disturbances within the meaning of Article 6(2)' (de Sadeleer et al, 2009). The CJEU has held that any activity affecting the SCOs applying to the area is assumed to have a significant effect (de Sadeleer et al, 2009). The information on the SCOs must be based on scientific knowledge and included in the conservation measures or management plans for the sites (European Commission, 2000)[434]. Against this background, it is clear that what may be significant for one site may not be the case for another (European Commission, 2000). As the Commission Guidance document on Article 6 notes, a loss of a hundred square metres of habitat may be significant in relation to a small rare orchid site, while a similar loss in a large steppic site may be insignificant (European Commission, 2000). The CJEU has recognised that even a small-scale project can have a significant effect on the environment if located in a situation in which the environment factors of the EIA Directive are sensitive to the slightest alteration (Day, 2015). The same applies for the Nature Directives where the significance of the effects needs to be determined in relation to the specific features and environmental conditions of the site concerned by the plan or project, taking particular account of the site´s conservation objectives (European Commission, 2000).

Overall, it can be concluded that all Directives use a similar concept for defining when a project shall be subject to an assessment, namely the likely significance of effects on the environment. The context within which the screening of such effects shall take place, however, depends considerably on the objective of each of the three assessments, either a broad context, taking account of several environmental factors and a consideration of all environmental impacts of a plan or project in the EIA and SEA, or a more targeted habitats-oriented assessment in view of the specific conservation objectives of a site for the AA. For all assessments, a case-by-case approach needs to be adopted by the competent authority, though guided by the criteria or objectives established in the legislation. For the EIA, certain types of projects - those listed in Annex I - are presumed to have significant effects on the environment.

[430] Article 4 and Annex I of the EIA Directive and Article 3 of the SEA Directive.
[431] Article 3(5) of the SEA Directive and Article 4(2) and Annex II of the EIA Directive.
[432] Article 4(3) of the EIA Directive.
[433] Case C-127/02. Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij, [2004] ECR I-07405.
[434] Article 6(1) of the Habitats Directive.

The Commission study on the procedure demanded by Article 6(3) of the Habitats Directive, noted that the screening procedure as part of the AA remains problematic in several countries. In Estonia, for example, it is integrated into the EIA /SEA procedure, but the majority of EIA/SEA screening decisions did not consider the impacts on Natura 2000 sites. It is also a problem in cases where screening procedures are used in a pro-forma manner (Sundseth and Roth, 2013). This seems consistent with the comments from the evidence gathering questionnaires, where practical implementation issues were raised.

8.2.3.1.4 Cumulative effects

Both the EIA and AA procedures require consideration of the cumulative effects of planned projects with other ongoing or planned activities, and do not allow a project to be divided into smaller components to avoid having to carry out assessments. The Court has explicitly pronounced itself on this issue in the context of the EIA Directive on several occasions[435]. The CJEU clarified that failing to take into account the cumulative effect of projects means that, in practice, all projects of a certain type may escape the obligation to carry out an assessment, despite the fact that when taken together, they are likely to have significant effects on the environment. This matter of law is also considered applicable in the context of the Habitats Directive AA (de Sadeleer et al, 2009). Article 6(3) of the Habitats Directive explicitly includes a requirement to cover cumulative effects of multiple projects in its wording: 'either individually or in combination with other projects'. The Dutch comparative report on Article 6 of the Habitats Directive concludes that the obligatory assessment of the cumulative effects under Article 6(3) is treated differently in the countries studied. In some countries the cumulative effects are taken into consideration in the legislation (Austria, France), and in other countries in practice (explanatory documents from the administration) or in case law (Germany, Belgium and the Netherlands) (Backes et al, 2006). In England, there is a single Guidance document completely devoted to the evaluation of cumulative effects. Two Member State representatives mention ongoing problems with the application of provisions on cumulative effects[436][437].

8.2.3.1.5 Content of the assessments

Article 3 of the EIA Directive requires the EIA to identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors: population and human health; biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; land, soil, water, air and climate; material assets, cultural heritage and the landscape; as well as the interaction between these factors. Article 5 of the Directive specifies the information to be recorded in the EIA report, and also requires the inclusion of the reasonable alternatives studied by the developer in the report. Article 5(1) of the SEA Directive requires the SEA to identify and evaluate the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account its objectives and geographical scope.

The AA under the Habitats Directive is narrower in terms of the scope and content of the assessment (European Commission, 2000). It aims at enabling an appropriate assessment of the significant impact of a plan or project in terms of its implications for the site in view of the site's SCOs and its integrity as defined in the SCOs (de Sadeleer et al, 2009). The content of the AA is not defined more precisely in the Directive, as this is inherently related to the SCOs and thus requires a decision on a case-by-case basis. The issue of the content of the assessment was, however, raised by some stakeholders (de

[435] Environmental Impact Assessment Of Projects - Rulings Of The Court Of Justice, 2013, http://ec.europa.eu/environment/eia/pdf/eia_case_law.pdf; Case C-392/96, Commission v. Ireland, [1999] ECR I-05901; Case C-142/07 Ecologistas en Acción-CODA v. Ayuntamiento de Madrid., [2008] ECR I-06097; Case C-205/08, Umweltanwalt von Kärnten v. Kärntner Landesregierung. [2009] ECR I-11525; Case C-275/09, Brussels Hoofdstedelijk Gewest and Others v. Vlaamse Gewest, [2011] ECR I-01753.
[436] Romania and Slovakia.
[437] Two Member State representatives noted that the assessment of cumulative effects is problematic, resulting in a focus on local conditions.

Sadeleer et al, 2009). This is confirmed by the EP study on the national implementation of the Habitats Directive, which presents case studies showing that the required content of an AA is set out in very general terms by the general EIA or SEA law without taking into account the specificity of Natura 2000 (e.g. Spain, Romania). This is an issue of transposition of the Directives by the Member States rather than one of coherence between the Directives[438].

The AA might consider alternative solutions, as this would be required in cases of overriding public interest under Article 6(4) of the Habitats Directive (de Sadeleer et al, 2009). A Greek stakeholder noted that the need for coherence between the EIA Directive and Nature Directives has been repeatedly recognised by the Greek Courts. A permit for a marble quarry was annulled, for example, because no alternative locations had been examined[439].

The EIA Directive explicitly refers to the habitats and species protected under the Habitats Directive, although the assessment under the EIA Directive is part of a wider environmental assessment, where several factors and their interactions are assessed. The reviewed EIA Directive ensures specific procedural links coordinating or integrating both assessment procedures with a view to ensuring coherence between the EIA and AA, and the full exploitation of synergies between the assessments (i.e. the use of conclusions from one assessment for the other)[440].

8.2.3.1.6 Implications of the outcome of the assessment

One of the key distinctions between the SEA and EIA, on the one hand, and the AA, on the other hand, is how the outcome of the assessment is followed (European Commission, 2010b). The SEA and EIA Directives lay down essentially procedural requirements and do not establish obligatory environmental standards. The EIA is aimed at making the planning authorities fully aware of the environmental implications of a proposed project so that these are taken into account in their final decision providing development consent (European Commission, 2010b). The AA, by contrast, lays down obligations of substance, mainly because it introduces an environmental standard, i.e. the conservation objectives of a Natura 2000 sites and the need to preserve the site's integrity (European Commission, 2010b). If the AA thus determines that a project will adversely affect the integrity of a Natura 2000 site, the authority cannot agree to the project as proposed, unless the conditions of Article 6(4) apply (European Commission, 2010b). There is, in other words, an obligation of result under Article 6(3), paragraph 2 of the Habitats Directive, where the outcome of the assessment is binding for the competent authority (Sundseth and Roth, 2013). Under the SEA and EIA Directives, there is only the obligation to take the outcome of the assessments into account when adopting a decision on development consent for a plan or programme.

Article 6(4) of the Habitats Directive provides a framework within which projects likely to significantly affect the integrity of a Natura 2000 site can be authorised by exception. The provisions of Article 6(4) thus apply when the results of the preliminary assessment under Article 6(3) are negative or uncertain (European Commission, 2000). As a first step, the national competent authority is required to assess alternative solutions, normally prepared under the AA (European Commission, 2000). A second step is the examination of reasons of overriding public interest[441]. If such a reason is accepted, compensatory measures shall be taken to ensure that the overall coherence of Natura 2000 is protected[442]. Stricter requirements apply where priority habitats and species are likely to be af-

[438] Conclusion based on stakeholders' statements that there are no issues of legal coherence between the Directives in this respect, but problems arise in relation to national implementation.
[439] Council of State, Greece, 293/2009.
[440] European Commission. SWD(2012), 355.
[441] The CJEU has interpreted the concept of 'imperative reasons of overriding public interest' (IROPI) in Case C-182/10 Solvay and Others (paragraphs 71 – 79).
[442] Article 6(4) of the Habitats Directive.

fected. No similar requirements to adopt compensatory measures exist under the EIA or SEA.

8.2.3.1.7 Public participation

Contrary to the SEA and EIA Directives, the Habitats Directive does not require mandatory public consultation. Article 6(3), in its second paragraph, leaves the involvement of the public in the AA to the discretion of the Member States where it says: 'the competent authority shall agree to the plan or project […], and, if appropriate, after having obtained the opinion of the general public.' This is most likely explained by the fact that the Habitats Directive is significantly older than the EIA and SEA Directives and was adopted at a time when the integration of public participation rights into domestic and EU law was in its infancy (Day, 2015). The SEA and EIA Directives establish detailed requirements for public participation, requiring the public concerned to be provided with early and effective opportunities to participate in the environmental decision-making procedures, and to be entitled to express comments and opinions when all options are open and before a decision on development consent is taken[443]. The revised EIA Directive has established specific timeframes for participation. No such requirements exist in the SEA Directive. Depending on the level of integration between the EIA and AA procedures in a Member State, aspects of the AA may - by association - be subject to public consultation, e.g. in case of integration of both assessments (European Commission, 2000).

8.2.3.2 Coherence with the ELD

The ELD[444] establishes a framework of environmental liability based on the polluter pays principle, to prevent and remedy environmental damage[445]. It was adopted in the wake of incidents damaging the environment in the EU for which no liability could be established in the Member State concerned due to the heavy burden of proof (Milieu and IUCN, 2014). With this in mind, the ELD was adopted, establishing strict liability for environmental damage (to biodiversity, land and water) linked to specific operational activities and a fault-based liability scheme for other operational activities (Milieu and IUCN, 2014).

Under Article 5 of the ELD, an operator is made responsible for the adoption of preventative measures where there is an imminent threat of environmental damage. Where environmental damage has occurred, the operator shall inform the competent authority without delay of all relevant aspects of the situation and take all practicable steps to immediately control, contain, remove or manage the damage factors to avoid further environmental damage and adverse effects on human health and the impairment of services[446]. The operator shall adopt remedial measures with a view to restore, rehabilitate or replace damaged natural resources and/or impaired services, or to provide an equivalent alternative. These remedial measures are decided upon by the competent authority. Article 8 of the ELD makes the operator responsible for bearing the cost of such preventative and remedial measures. To this end, Article 14 allows the Member State to require the operator to provide a financial guarantee. The ELD establishes an EU wide framework for administrative liability for environmental damage, as distinct from a civil liability system for 'traditional damage' (damage to property, economic loss)[447]. The competent authorities have a prominent role in the implementation of the ELD, such as in assessing the significance of the damage occurred, and in determining which remedial measures shall be adopted[448]. The Directive establishes clear links to existing environmental legislation, with Recital 8 of the Directive noting that the activities covered by the ELD should be

[443] Article 6 of the EIA Directive and Article 6 of the SEA Directive.
[444] Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, OJ L 143, 3.4.2004, p.56.
[445] Article 1 of the ELD.
[446] Article 6(1) of the ELD.
[447] European Commission website, introduction to the ELD, http://ec.europa.eu/environment/legal/liability/
[448] European Commission, 'Environmental Liability Directive, a short overview', http://ec.europa.eu/environment/legal/liability/pdf/Summary%20ELD.pdf

identified, in principle, by reference to the relevant Community legislation which provides for regulatory requirements in relation to certain activities or practices considered to pose a potential or actual risk for human health or the environment. In its Recital 5, the ELD notes that when a concept derives from other relevant Community legislation, the same definition should be used, allowing for common criteria and uniform application.

8.2.3.2.1 Complementary objectives: conservation efforts and liability for damage

The ELD contains several explicit references to the Nature Directives, such as in the definition of environmental damage and in the use of the concept of Favourable Conservation Status. As outlined in the Commission report on 'Experience gained in the application of the ELD to biodiversity damage', there are clear links between both legal regimes as the ELD is designed to complement the EU's nature protection legislation (Milieu and IUCN, 2014). Both instruments aim to halt biodiversity loss in the EU. While the Nature Directives have as their general objective to maintain and restore the conservation of natural habitats and of wild species at Favourable Conservation Status in the EU, the ELD aims to prevent and remedy environmental damage, including to such protected species and habitats (Milieu and IUCN, 2014).

The 2013 implementation report on the ELD revealed that the transposition of the ELD into national law has not resulted in a level playing field but, rather, a patchwork of liability systems for preventing and remedying environmental damage – as shown by the considerable variations in numbers of ELD cases across the Member States (BIO Intelligence Service and Lowndes, 2013). There are significant variations in the implementation and enforcement of the ELD across Member States, with the report noting that in several countries there is a misperception that the ELD applies only to the most severe instances of biodiversity damage (BIO Intelligence Service and Lowndes, 2013).

The report also highlights that the poor implementation of the ELD in relation to the cases of 'biodiversity damage' that it covers, jeopardises the achievement of its objective to establish a complementary system to the Nature Directives whereby the ELD would ensure that the polluter pays principle is applied to biodiversity damages, while under the Nature Directives, the public authorities are ultimately responsible. Nevertheless, the ELD is highlighted by several stakeholders (NGOs and Member States) as an important added value for the Nature Directives.

8.2.3.2.2 Thresholds for application of the ELD and Nature Directives: the concept of significant environmental damage and FCS

The ELD defines environmental damage as 'damage to protected species and natural habitats, which is any damage that has significant adverse effects on reaching or maintaining the Favourable Conservation Status of such habitats or species. The significance of such effects is to be assessed with reference to the baseline condition, taking account of the criteria set out in Annex I'[449]. Annex I excludes fluctuations or negative variations due to natural causes, or damage from which the habitats and species can recover within a short timeframe and without intervention. The definition excludes previously identified adverse effects which result from an act by an operator which was expressly authorised by the relevant authorities in accordance with provisions implementing Article 6(3) and 6(4) of the Habitats Directive, or in the case of habitats not covered by Community law, in accordance with equivalent provisions of national law on nature conservation[450]. Protected species and natural habitats are further defined as those species mentioned in the Nature Directives, the habitats of species mentioned in the same Directives, as well as any habitats or species not listed in the Annexes to these Directives which the Member

[449] Article 1(a), first indent of the ELD.
[450] Article 1(a), second indent of the ELD.

States designate for equivalent purposes as those laid down in the Directives. The scope of the protected species and natural habitats covered by the ELD is thus larger, but explicitly includes those of the Nature Directives. The definition of environmental damage also refers to the concept of Favourable Conservation Status, defined in Article 2(4) of the ELD in the same manner as in Article 1 of the Habitats Directive, thus establishing a clear link and shared baseline in both regimes.

One important difference between the ELD and the Nature Directives lies in the fact that the ELD only applies when adverse effects on the Favourable Conservation Status of a species or habitat are 'significant'. The report on the application of the ELD to biodiversity damage concluded that analysis of the implementation of the ELD in Member States has shown that the interpretation of significant biodiversity damage varies significantly from one Member State to another (Milieu and IUCN, 2014). The report notes that 'whilst some countries interpret that the ELD regime is limited to severe, almost catastrophic cases of biodiversity damage, other Member States apply this concept to any damages to biodiversity beyond small variations' (Milieu and IUCN, 2014). Under the Habitats Directive, however, Article 2 requires all measures taken under the Directive to be designed to maintain or restore natural habitats and species of wild fauna and flora at Favourable Conservation Status. A deterioration or disturbance is, according to Article 6(2), assessed against the conservation status of the species concerned, and are considered significant if they trigger change in indicators of the conservation status of protected species in such a way as to affect the conservation status of the species concerned (Milieu and IUCN, 2014)[451]. This is a significantly lower threshold than that required by the ELD. The report therefore recommends amending the definition of environmental damage under the ELD to bring it in line with the Habitats Directive. The report does not identify changes to be made to the Nature Directives in this respect. This issue is also raised by Member State authorities in the evidence gathering questionnaires.

8.2.3.2.3 Preventative measures

Both the ELD and the Habitats Directive refer to measures to prevent any damage to, or deterioration of, biodiversity in protected areas (Milieu and IUCN, 2014). The ELD deals with environmental damage and has, thus, in its essence, an ex-post nature. However, Article 5 of the ELD establishes specific preventative requirements in cases where environmental damage has not yet occurred, but when there is an imminent threat of such damage occurring. Similarly to the issues raised above, the concept of significant environmental damage creates a different threshold for the application of the preventative requirements of both instruments, as the obligations under the ELD are linked to the definition of environmental damage. The report on the application of the ELD states that this creates differences in thresholds for the application of the ELD across the Member States (Milieu and IUCN, 2014). The report, however, does not suggest any modifications to the Nature Directives, but, rather, recommends bringing the concept of preventative measures and significant environmental damage under the ELD in line with the concept used under the Nature Directives (Milieu and IUCN, 2014).

8.2.3.2.4 Remedial measures and compensatory measures

Remedial and compensatory measures under the ELD and the Nature Directives are different in kind, given the different purposes of each piece of legislation.

When environmental damage has occurred, Article 6 of the ELD requires the operator to inform the competent authority of all relevant aspects of the situation without delay. The operator must take steps to control, contain, remove or otherwise manage the contaminants or damage factors to limit or prevent further damage. Finally, the operator is required to take remedial measures. The determination of such remedial measures is further regulated in Article 7 of the ELD. The operator is required to identify potential reme-

[451] Article 6(2) of the Habitats Directive.

dial measures in line with the requirements of Annex II, while the final decision on which remedial measures shall be implemented is taken by the competent authority, in line with the same criteria of Annex II. Annex II of the ELD provides for three types of remediation measures: primary remediation measures, which return damaged natural resources and/or impaired services to baseline conditions; complementary measures, which aim to provide a similar level of natural resource and/or service, even at an alternative site, as would have been provided if the damaged site had returned to baseline condition; and compensatory measures, which aim to compensate for interim losses of natural resources until primary remediation has achieved its full effect. Article 6(4) of the Habitats Directive requires compensatory measures to be taken when a project may be authorised in spite of a negative assessment of likely effects under Article 6(3). Contrary to the approach adopted under the ELD, the Habitats Directive does not define the types of compensatory measures which shall be adopted. The Guidance document on Article 6 of the Habitats Directive, however, indicates that compensatory measures would aim to offset the negative impact of a project and to provide compensation corresponding precisely to the negative effects on the species or habitat concerned (European Commission, 2000).

As noted in the report on the application of the ELD to biodiversity damage, the effects of the complementary and compensatory measures under the ELD are more ambitious and stringent than those of the Habitats Directive. Under the ELD, the complementary and compensatory measures are not related to the conflicting interest of the damaging project or activity, but rather to the effectiveness of the remediation measures and the requirement to compensate for interim losses undergone by the EU's biodiversity, pending its recovery (Milieu and IUCN, 2014).

8.2.4 Key findings

- Overall, the Nature Directives are considered to be coherent with the EIA, SEA and the ELD Directives, a view clearly expressed by stakeholders in both the evidence gathering questionnaire and the online public consultation. However, there was some suggestion from the evidence gathering questionnaire that conflicts may arise in individual projects.
- The overall legal framework for EIA/SEA and the AA procedure required under the Habitats Directive, including the objectives and scope, definition of projects subject to the assessments, likely significant effects, cumulative effects and public participation, is coherent. However, AA is confined to implications for Natura 2000 sites, whereas EIA and SEA focus on wider environmental impacts of projects, plans and programmes. Furthermore, AA conclusions require that any negative impacts are addressed within proposed developments, while the outcomes of SEA and EIA merely need to be taken into account. SEA typically involves a broader scope and longer timeframe than AA. Commission guidance explains that an SEA considering biodiversity can be particularly supportive of nature protection objectives when carried out in an appropriate manner.
- The Commission impact assessment for the proposal to revise the EIA Directive in 2013 noted that synergies between EIA and AA assessments had not been sufficiently exploited. In addition, the regulatory impact assessment of the revised EIA Directive noted that species protection provisions tend to be neglected in EIAs, an issue raised by several stakeholders in the evidence gathering questionnaire. The revised EIA Directive establishes coordinated and joint procedures for EIA and other environmental assessments, and specifically requires effects on biodiversity to be assessed, with particular attention paid to species and habitats protected under the Nature Directives.
- Issues of legal uncertainty regarding interpretation of key terms and approaches used in the different environmental assessments have been clarified over time, either through case law or Guidance documents. For example, the meaning of the terms 'project' and 'plan' and of 'significant effect' have been clarified by the

CJEU. Stakeholders highlighted problems with access to data on specific habitats and species, or their conservation status, or the lack of clarity on which information should be used as part of the assessments.

- Inconsistencies raised by stakeholders mostly related to issues of national implementation. For example, case studies show that the specific impacts on Natura 2000 sites are not always assessed in detail in countries where EIA and AA procedures are integrated. Stakeholders believe that new requirements for integrating EIA and AA procedures still lack sufficient emphasis on the need to properly consider the impacts on conservation objectives, an oversight which may exacerbate this situation. Several stakeholder types stated that SEA sometimes functioned as more of an administrative requirement, rather than an instrument for enhancing implementation of the Nature Directives. Some Member States have developed Guidance documents to encourage a more focused approach to SEA.
- Legal literature and an EC Study on the implementation of ELD on biodiversity damage note the complementary objectives of the ELD and the EU nature protection legislation. While responses to the evidence gathering questionnaire specifically addressing the ELD were more limited in number than for the EIA and SEA Directives, the ELD was generally believed to be coherent with the Nature Directives, a view corroborated by the online public consultation. Published studies and some respondents to the evidence gathering questionnaire, however, identify one particular area of improvement for coherence between the ELD and the Nature Directives, noting that the concept of significant biodiversity damage, which triggers the application of the obligations under the ELD for operators to prevent and remedy biodiversity damage, should be brought in line with the concept of significant deterioration or disturbance under the Nature Directives.
- The EC Study on the implementation of ELD on biodiversity damage highlights that uneven implementation of the ELD in this respect jeopardises its objective to complement the Nature Directives by ensuring application of the polluter pays principle for biodiversity damage.

8.3 C.3 - Is the scope for policy integration with other policy objectives (e.g. water, floods, marine, and climate change) fully exploited?

8.3.1 Interpretation and approach

The extent to which the objectives of the Nature Directives have been integrated into, support, or are supported by, the objectives of other relevant EU environment policies is assessed in this question. The specific judgement criteria that have been used are the extent to which

- The legal requirements of Directives and policy objectives are coherent with each other.
- The implementation of EU policy and Directives are coherent, including potential synergies and challenges between Directives.

The protection of biodiversity, sustainable use of water and marine resources, the control of water and air pollution, and the mitigation of and adaptation to climate change are priorities of the environmental policy framework of the European Union. Specific pieces of legislation are in place to achieve each of these distinct but interlinked objectives. Ultimately, success in one area is dependent on progress made in the others, making coherence in the regulatory and implementation framework essential to achieve the respective goals of these different instruments. For example, reducing nutrient loads under the WFD will combat eutrophication of the marine environment and will support the maintenance or improvement of the conservation status of protected fish and riparian habitats.

This section addresses the environmental policies targeting the sectors most likely to impact the implementation of the Nature Directives. It covers the water, marine, floods and air pollution sectors which ensure sustainable management of resources that are critical for habitats and species, and which require strong coordination with nature protection efforts. It also considers climate change, the adaptation and mitigation efforts of which interact significantly with nature protection. While the status of species and habitats in Natura 2000 sites is threatened by climate change, well-managed habitats can provide options to adapt to climate change. Mitigation efforts, as under the Effort-sharing Decision and the EU Emissions Trading System cut across many policy sectors, e.g. energy, agriculture, transport. (see section 8.4 for consideration of coherence of the Nature Directives with EU climate change policies within these sectors.) The climate mitigation efforts that also have an adaptation benefit, e.g. peatland restoration, are covered in this section. This section also considers climate change adaptation and efforts to reduce airborne pollution through the National Emissions Ceiling Directive.

The EU environmental legislation and policies relevant to this question are:

- Directive 2000/60/EC (Water Framework Directive, WFD).
- Directive 2007/60/EC (Floods Directive, FD).
- Directive 2008/56/EC (Marine Strategy Framework Directive, MSFD).
- Communication (2013) 216 (EU Strategy on Adaptation to Climate Change).
- Directive 2001/81/EC (National Emissions Ceiling Directive, NEC Directive).

8.3.2 Main sources of evidence

The provisions of the relevant Directives and policies were assessed for their coherence with the Nature Directives. This information was complemented by available reports at EU and Member State levels, including the work carried out in the context of an EU workshop on coordinated implementation of nature, biodiversity, marine and water policies (European Commission, 2015d).

Evidence regarding implementation was, for the most part, obtained from the evidence gathering questionnaires. Of 112 questionnaires, 50 responded to this question, from 23 Member States and EU level organisations. About half of the responses came from environmental NGOs (who generally expressed similar opinions and referred to the same evidence). 14 nature protection authorities and two marine-related authorities responded, with a further five responses received from industry.

8.3.3 Analysis of the question according to available evidence

8.3.3.1 Coherence of the Nature Directives with the WFD

8.3.3.1.1 Legal requirements under the WFD

The main objectives of the WFD are to prevent any deterioration of the current status and to reach Good Ecological Status and Good Chemical Status in all surface waters, including rivers, lakes, transitional waters and coastal waters. For groundwater the WFD establishes the objective of Good Chemical and Good Quantitative Status, which includes the protection of associated surface water and terrestrial ecosystems. For heavily modified and artificial water bodies, Good Ecological Potential (GEP) is to be achieved. Good Status in all waters (surface water, groundwater, heavily modified and artificial waters) is to be achieved by 2015, or, where exemptions are granted, in 2021 or 2027. Detailed provisions exist on the field monitoring of water status.

To achieve Good Status, a Programme of Measures (PoM) must be established as part of the River Basin Management Plan (RBMP). The PoM comprises both basic measures and supplementary measures. Basic measures under the WFD (Annex VI) are the minimum requirements for compliance, including those measures necessary to implement the Birds and Habitats Directives, either directly into the RBMPs or by reference to the relevant Natura 2000 management plan. Article 6, Annex IV and Annex VI of the WFD all contain explicit cross-references to the applicable requirements for protected areas. Under the WFD, supplementary measures must be taken if the existing measures are not sufficient to achieve Good Status. The WFD thus provides a framework for the implementation of measures required to satisfy both its own terms and those of the Nature Directives. Every six years, a new version of the RBMP is submitted to the European Commission, in which progress is reported and an updated PoM proposed. March 2016 is the deadline for submission of the second version of the RBMP.

8.3.3.1.2 Synergies

The 2015 State of Nature Report (EEA, 2015a) finds that many of the bad status/deteriorating trends are found in water-related species and habitats. The main legal instrument to maintain or improve the status of aquatic habitats is the WFD, while the Nature Directives also aims to protect, and where necessary restore, habitats, including aquatic habitats. The conservation status of a water-dependent Natura 2000 site largely depends on the water status upstream (i.e. outside) of the Natura 2000 site. Water-

dependent ecosystems can also function as a spawning area for species that are important for the status elsewhere in the river basin. The achieving of good water status under the WFD is, therefore, an important boundary condition to achieve a Favourable Conservation Status (or similar) of species under the Nature Directives, while at the same time, well-managed water-dependent ecosystems can also contribute to achieving the objectives of the WFD (Feld et al., 2011) (Hering et al., 2013) (Strosser et al., 2015) (European Commission, 2015d).

Several reports at EU level also found the WFD and the Nature Directives to be coherent and mutually supportive. The 'EU guidance on the links between the WFD and the Nature Directives' (European Commission, 2012h) states that the WFD and Nature Directives provide a sound basis for joint management. The 'EU workshop on the coordinated implementation of nature, biodiversity, marine and water policies' particularly focused on finding solutions for a better coordinated implementation of the WFD, Nature Directives and MSFD (European Commission, 2015d). Day (2015), representing the World Wide Fund for Nature (WWF), also found many synergies, and stated that the implementation of measures under the WFD will generally benefit the objectives of the Nature Directives, if implementation is coordinated. Evidence of the coherence of implementation was provided by 12 respondents, including the nature authorities from Denmark and Luxembourg, who each confirmed the complementarity of the Directives. The Danish nature authority stated that the WFD has been supportive in achieving the objectives of the Nature Directives, while the nature authority of Luxembourg stated that well-managed water-dependent Natura 2000 sites are essential to achieve the goals of the WFD.

8.3.3.1.3 Challenges

The strong dependencies between the Nature Directives and the WFD have led to a number of issues in implementation. The Directives have different requirements, such as the scales of assessment, monitoring and the planning of measures, reporting and public consultation procedures. An overview of issues is provided in the background document of the 2014 coordinating workshop (European Commission, 2014g), one outcome of which was the identification of options to increase integration and coordination (European Commission, 2015d). The 'Fitness check on the EU Freshwater Policy' (European Commission, 2012i) and the responses to the evidence gathering questionnaires reflected similar concerns, summarised below.

Streamlining of assessments

Given that inter-related assessments are required under the different legislations, Member States are keen to prevent unnecessary duplication of work. Methodological differences exist, however, complicating comparison of the assessments carried out under the WFD and the Nature Directives. Better streamlining is needed, in particular with respect to the indicators used, the typology and the geographical scale of the assessments (European Commission, 2012h; European Commission, 2015d).

Firstly, the indicators used to quantify Good Ecological Status (or similar) and Favourable Conservation Status (or similar) are different and not directly comparable. Ecological status is classified for all water bodies on the basis of a concrete list of quality elements (hydromorphological, physico-chemical and biological), while the classification of Favourable Conservation Status is more flexible and qualitative. For example, criteria to assess the status of protected species include: 'populations are maintaining themselves in the long term and do not show signs of continuing decline' and 'their natural range is not being reduced'. Member States are relatively free to interpret the assessment requirements for Favourable Conservation Status, resulting in a range of methods being used. Some of the WFD quality elements overlap with water-dependent protected habitats and species (e.g. certain protected fish or macrophytes species).

Secondly, the need to assess status at different levels under the different legislations, i.e. at water body level under the WFD, and at the levels of protected species and habitat under the Nature Directives, further complicates the comparison. Under the WFD, water

bodies are distinct parts of surface water (rivers, lakes, transitional and coastal waters) or groundwater. The typology of water bodies required under the WFD is, therefore, more detailed than water-related habitats under the Habitats Directive. Under the WFD, for example, one type of surface water is 'small gravel-dominated lowland river' and a type of coastal water is the 'inner coastal rivers of the Baltic Sea', while under the Habitats Directive, habitat types are '3220 - Alpine rivers and the herbaceous vegetation along their banks' or '1150 - coastal lagoons' (European Commission, 2012h; European Commission, 2015d). The linking of protected species to water bodies is even more complex, as some species use a range of water bodies and ecosystems during their life cycle. A method to relate protected species to broad ecosystems is given in the 2015 State of Nature Report (EEA, 2015a). The broad ecosystems relevant for the WFD are 'rivers and lakes', 'marine inlets and transitional waters' and 'coastal'. Consequently, a Natura 2000 site typically may include several water bodies. At a higher geographical level, there is also no direct correspondence between the WFD water types and the habitat types under the Habitats Directive, further complicating a comparison of status.

Streamlining of monitoring and reporting

The different assessment needs require distinct monitoring and associated databases. Under the WFD, detailed monitoring requirements are specified, while the Nature Directives specifies no such details. Also, the provisions on the reporting of the progress of implementation by the Member States to the Commission have different timelines, with reporting under the Birds Directives required every three years, compared to reporting every six years under the WFD and Habitats Directive. More coordinated reporting and monitoring could reduce the administrative burden and facilitate the development of communication platforms (e.g. databases and internet sites) (European Commission, 2015d). Currently, the Commission and Member States are assessing the extent to which joint monitoring is possible, while the feasibility of a more coordinated reporting process is also being examined.

Coordination of the planning and implementation of measures

Given that the WFD explicitly requires the integration of measures under the Nature Directives into the RBMPs, planning and implementation of measures must be coordinated. Challenges arise in terms of implementation, most often due to insufficient coordination and dialogue, as well as lack of experience within the competent authorities (European Commission, 2015d). It was also noted in (European Commission, 2015d) that intergovernmental communication is sometimes lacking between and within ministries and within the Commission itself. (European Commission, 2015d) identified the central importance of dialogue early in the planning process.

Natural Water Retention Measures (European Commission, 2014h) also provide benefits for the WFD and the Nature Directives. Conflicts may arise, presenting planning and implementation challenges, such as the restoration of heavily modified water bodies (HWMB) to a more natural state, as required under the WFD. The restored water body would provide new habitats in which new valuable species could sustainably develop. While the Nature Directives do allow for such restoration, stakeholders reported that such restoration can also damage protected habitats and species. Such damage as a consequence of restoration activities is, stakeholders believed, in breach of the Nature Directives, and leads to increased costs and delays for the implementation of projects that may have overall ecological benefits. The text of the Nature Directives does not block such restoration, but, rather, requires a revision of the conservation objectives, adapted to the restored habitat conditions. An example of such a conflict is Lake Grevelingen in the Netherlands. The objective of the restoration in Lake Grevelingen is to restore some tidal influence by partly opening the dykes. While this will lead to an increase of the salinity and an improvement of the water quality, it will also impact some species and habitat types protected under the Nature Directives. This situation directly raises the question of whether it is better to conserve the present status than to restore ''pristine'' conditions with inevitable loss of 'artificial' yet protected habitats.

8.3.3.2 Coherence of the Nature Directives with the FD

8.3.3.2.1 Legal requirements of the FD

The FD aims to establish a framework for the assessment and management of flood risks in order to limit the consequences for human health, the environment, cultural heritage and economic activity. Flood hazard and flood risk maps (FHRM) are developed to show the potential adverse effects of floods on, amongst others, the Natura 2000 sites, with Flood Risk Management Plans (FRMP) then developed to reduce the adverse consequences of floods. FRMP may promote sustainable land use practices and the improvement of water retention, for example by implementing Natural Water Retention Measures (NWRM). The FD requires the FRMP to be coordinated and synchronised with the WFD. The FRMP also consider spatial planning, land use and nature conservation. The FD is relatively recent (it was adopted in 2007), and its first cycle of implementation will end in 2016 with the submission and evaluation of the first version of the FRMP.

(Day, 2015) concludes that while the FD does not make explicit reference to the Nature Directives, Member States have to coordinate the implementation of the FD with the WFD, which has strong synergies with the Nature Directives. This is, of course, one step removed, increasing the chances of insufficient coordination. Although there is no evidence to-date to suggest that this is the case, the FD remains in the early stages of implementation.

8.3.3.2.2 Synergies

The main synergies between the FD and the Nature Directives are expected through the implementation of the Natural Water Retention Measures (NWRM). These are defined as 'multi-functional measures that aim to protect and manage water resources using natural means and processes' (European Commission, 2014h). NWRM have the potential to provide multiple benefits, including flood risk reduction, water quality improvement, groundwater recharge and habitat improvement (Strosser et al, 2015). As such, they can help to achieve the goals of key EU policies such as the WFD, the FD, the EU Adaptation Strategy and the Birds and Habitats Directives. Evidence for the multiple benefits of NWRM is demonstrated in the catalogue of measures and a practical guide to support the selection, design and implementation of NWRM in Europe has been published (Strosser et al, 2015)[452]. The guide states that while a number of local practices exist, the practical implementation of an integrated flood-nature management approach is lacking in many Member States. Of the eight responses on the interactions between the FD and the Nature Directives, most were of the opinion that practical experience in the implementation of natural flood risk management is limited.

8.3.3.2.3 Challenges

While several examples of NWRM are available at local level, the use of NWRM in flood risk management is not widespread (European Commission, 2014h; Strosser et al, 2015). To encourage water managers to support the uptake of NWRM in FRMPs – among other tools - and to facilitate their implementation via enhanced coordination with other sectors, the EU Policy Document on NWRM was developed (European Commission, 2014h). This explains the policy relevance of NWRM and provides recommendations on overcoming existing challenges:

- Make policy coordination truly operational: Barriers that hinder the selection of NWRM are related to knowledge gaps on the performance (cost and benefits) of NWRM, limited awareness of the mutual benefits of coordination and the perception that grey infrastructure is better than Green infrastructure.

[452] www.nwrm.eu, accessed 5.02.16

- Give more attention to land use planning in water management: The implementation of NWRM often requires large areas of land. These might be unavailable or difficult to access, due to private ownership of land and water or regulations on spatial planning.
- Mobilise and combine financial resources: Limited financial resources are often mentioned as a barrier to the implementation of NWRMs. Many NWRM projects benefit from European, national, regional or local public funds, although experience shows that the financing potentials of public funds often remain largely untapped.
- Raise awareness and strengthen the knowledge base and exchange of best practices on NWRM: the implementation of NWRM is often challenging from a technical point of view. Considering that NWRM can be used to pilot integration and coordination across sectors and policies, the implementation of NWRM may also be challenging from an institutional point of view, especially in the start-up phase.

The German nature authority described how the two largest dyke relocations on the River Elbe have provided more floodwater storage and better abiotic conditions for the Natura 2000 sites enshrined by the relocated dykes, pointing to this as an example of coordinated implementation of the FD and the Nature Directives. The example provided by the Netherlands describes conflict in the implementation of NWRM, whereby the temporary change of soil nitrogen during the restoration of a floodplain created additional pressure on protected species. This was perceived by the Dutch authorities as a breach of the Nature Directives. Additional efforts were needed to compensate for the negative effect, resulting in increased administrative burden and delay in implementation.

Similar issues can be found in the restoration of heavily modified water bodies under the WFD, where the Nature Directives are perceived to offer little or no flexibility (see section 8.3.3.1).

8.3.3.3 Coherence of the Nature Directives with the MSFD

8.3.3.3.1 Legal requirements of the MSFD

The MSFD aims to achieve or maintain Good Environmental Status (GES) in marine waters. The status has 11 descriptors, the majority of which are directly related to marine biodiversity. Marine waters include coastal waters - which are already covered under the WFD - and off-shore waters, for which no prior EU legal framework existed. The Directive states that cooperation is essential to achieve its objectives, and, to this end, it includes cross-references to the Nature Directives in its Article 11 (monitoring programmes), Article 13 (programme of measures) and Annex III (habitat types), to guard against incoherent interpretation and implementation.

The MSFD makes direct reference to the Nature Directives with respect to monitoring programmes and habitat types. The monitoring programmes must be compatible with the requirements of the Nature Directives, among others. For habitats, however, unlike the very detailed breakdown of water bodies under the WFD, the habitat types under the MSFD are broader and more comparable to the Habitats Directive. An overview of the linkages between the habitat types of the MSFD and the Habitats Directive is made in the Crosswalks between European marine habitat typologies (Evans et al, 2014). Under the Habitats Directive, 10 habitats are considered to be marine. The majority of habitats are related to coastal or shallow water habitats, such as posidonia beds (1120) and coastal lagoons (1150). Only three habitats partly refer to offshore habitats, i.e. reefs (1170), submarine structures made by leaking gases (1180) and submerged or partially submerged sea caves (8330). Under the MSFD, habitats are classified under three zones:

seabed habitats, water column habitats and ice habitats. The zones are further subdivided according to their location (from littoral to shelf, bathyal and abyssal) and geology (e.g. rock, biogenic reef, sand, mud). In comparison to the Habitats Directive, the MSFD has systematic coverage of offshore habitats (partly covered under the Habitats Directive) and also covers water column habitats (not covered under the Habitats Directive).

To achieve or maintain GES, Programmes of Measures (PoMs) are developed and implemented in order to protect, preserve or restore the marine environment. PoMs include spatial protection measures contributing to coherent and representative networks of Marine Protected Areas (MPAs). The network of MPAs must include previously designated marine Natura 2000 sites. In addition, the MPA network is to be extended with newly designated sites, which may also be designated as new Natura 2000 sites. This is not, however, obligatory under the MSFD.

8.3.3.3.2 Synergies

Adopted in 2008, the MSFD is a relatively recent Directive, and its first cycle of implementation is due to end in 2016 with the submission and evaluation of the first version of the marine PoM. While the majority of stakeholders (NGOs from 16 Member States, nature authorities and other authorities from five Member States) addressing the MSFD in the evidence gathering questionnaires state that it is not yet possible to draw reliable conclusions, they nonetheless expect good synergy between the MSFD and the Nature Directives, as the conservation of marine biodiversity is a strong component of the MSFD. Also, the provision to designate new MPAs will extend the current marine Natura 2000 network. Progress made in establishing the MPAs is described in (European Commission, 2015e). The report presents three types of MPAs in Europe: marine Natura 2000 sites, MPAs designated under Regional Sea Conventions, and individual national MPAs, cautioning that the designation processes and legal requirements of each MPA may be different. A draft method to assess the parameters of a 'coherent and representative' network of MPAs is currently being developed (EEA, 2015b). A first version of the MPA network is to be submitted as part of the PoM under the MSFD by March 2016.

8.3.3.3.3 Challenges

The challenges described under the WFD are generally applicable to the MSFD as well, albeit with less implementation experience. The 2014 workshop on the coordinated implementation of nature, biodiversity, marine and water policies highlighted options to convert challenges of implementation into synergies (European Commission, 2015d). It is generally accepted that improved harmonisation could lead to more streamlined implementation approaches, reducing costs for Member States and improving the effectiveness of the Directives (European Commission, 2015d). Aspects that could be streamlined are assessment methods, including the assessment of GES and Favourable Conservation Status at the scale of a marine region or subregion, the use of a common set of indicators and more coordinated monitoring programmes.

Several projects highlighted the challenges for more coordinated monitoring programmes, including the projects MARMONI and BALSAM (Baltic Sea), JMP NC/CS (North Sea/Celtic Sea), MONIT (North Sea) and IRIS-SES (Mediterranean & Black Sea). With a large knowledge gap on biodiversity in marine areas, and given the high cost of monitoring, the use of MSFD data for other monitoring programmes (including the Nature Directives) remains problematic due to a lack of common indicators and coordination across borders (European Commission, 2015d). Efforts are continuing to improve coordination of the implementation of the MSFD with the implementation of programmes at the Regional Sea Conventions.

While the number of respondents was limited, the majority (16 NGOs, two Member State authorities and one respondent from the fisheries sector) suggested that the management of MPAs should be better coordinated between the competent authorities for the MSFD, the Nature Directives and the Common Fisheries Policy (CFP).

8.3.3.4 Coherence of the Nature Directives with the EU Adaptation Strategy

8.3.3.4.1 Requirements of the EU Adaptation Strategy

The 2013 EU strategy on adaptation to climate change aims to make Europe more climate-resilient. The Adaptation Strategy refers to three main priorities:

- **Promote action by Member States**, in particular through the development of Member State adaptation strategies, and promotion of LIFE projects on adaptation.
- **Better informed decision-making** by addressing gaps in knowledge of adaptation and further developing the European climate adaptation platform, called Climate-ADAPT.
- **Climate-proofing action at EU level** by promoting adaptation in key vulnerable sectors, including biodiversity.

8.3.3.4.2 Synergies

The EU adaptation strategy makes reference to the advantages of ecosystem-based adaptation, under the first priority (promote action by Member States, in particular action 2 on LIFE funding for adaptation) and the third priority (climate-proofing action at EU-level, in particular action 7 on more resilient infrastructure). The reference to ecosystem-based adaptation under action 2 includes cost effectiveness and multiple benefits for flood risk reduction, improved water and air quality and reduced heat-island effect. Action 7 aims to ensure the full mobilisation of ecosystem-based adaptation. The Adaptation Strategy also refers to the mainstreaming of adaptation in the EU Biodiversity Strategy, and to Commission guidelines on adaptation and the Natura 2000 network, which were issued shortly after the 2013 adoption of the adaptation strategy.

Certain habitats, including Natura 2000 sites, are considered to be under threat from climate change and, therefore, need to adapt. The EU guidelines on climate change and Natura 2000 report the growing evidence of Natura 2000 sites as natural solutions for mitigating and adapting to climate change, while at the same time delivering Natura 2000 objectives (Alterra and Eurosite, 2013). Examples given in (Alterra and Eurosite, 2013) on the functioning of Natura 2000 sites as a climate adaptation and mitigation option are: the capturing and storage of carbon dioxide in peatlands and forests; water retention in riparian and coastal Natura 2000 sites to reduce the risk of droughts and floods; heat regulation in heavily urbanised areas; and reduction of the impact of rising sea levels. The EU Policy Document on Natural Water Retention Measures also recognises ecosystems as adaptation and mitigation options. Examples of NWRM that also have benefits for climate change adaptation are the Dutch projects 'Room for the River' and the 'Delta programme' (European Commission, 2014h).

Peatland conservation and restoration was most frequently mentioned as having benefits for nature conservation, carbon sequestration (climate mitigation) and flood prevention (climate adaptation). Stakeholders also stated that they had used the LIFE programme to develop ecosystem-based adaptation practices.

8.3.3.4.3 Challenges

Despite guidelines and references within the EU adaptation strategy, the 12 stakeholders (eight NGOs and four nature authorities) who addressed climate change adaptation in the evidence gathering questionnaire, stated that ecosystem-based adaptation is not yet widely practiced. An overview of EU adaptation policies (EEA, 2014b) showed that an assessment on the risk and vulnerability to climate change for biodiversity has been car-

ried out in 20 Member States. Only six Member States, however, prioritised biodiversity as a priority sector for adaptation.

Global environmental changes have been driving large-scale shifts in the distribution of species and in the composition of biological communities. Many species have shifted to higher elevations or towards the poles. Natura 2000 sites have fixed borders and there is concern that they may lack the flexibility to maintain populations of species whose distributions move in response to climate change and other environmental drivers (Araujo et al, 2011; Thomas and Gillingham, 2015). Empirical evidence, however, highlights that protected areas remain important to protect species under climate change. Protected areas act as stepping stones for the migration of species (Thomas and Gillingham, 2015), and losses from some protected areas are offset by increases in others. In addition, protected species remain more abundant within than outside protected areas. The challenge for Natura 2000 site managers will be to balance the need to conserve current species while also encouraging colonisation by new species.

Climate change adaptation is at an early stage and it remains to be seen how future efforts to adapt will reinforce or undermine the implementation of the Nature Directives.

8.3.3.5 Coherence of the Nature Directives with the NEC Directive

8.3.3.5.1 Requirements of the NEC Directive

Directive 2001/81/EC on National Emission Ceilings for certain pollutants (NEC Directive) establishes upper limits for the total emissions in 2010 of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution (sulphur dioxide (SO2), nitrogen oxides (NOx), volatile organic compounds (NMVOC) and ammonia (NH3)). The revised NEC Directive (in 2003) extends the 2010 ceilings to 2020. The revised Directive also establishes new national emission reduction commitments for 2030 for SO2, NOx, NMVOC, NH3, fine particulate matter (PM2,5) and methane (CH4). The proposal for a Directive on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC (the NEC proposal) aims to address some of the shortcomings in the implementation of the Union air policy framework and the need for enhanced coordination between emission reductions and air quality, as well as climate change and biodiversity protection[453].

The Directive requires Member States to develop national programmes in 2002 to meet their fixed ceilings of national emissions by 2010, with an interim revision of plans in 2006. Member States are required to report their emission inventories to the EEA and the Commission in order to monitor progress and verify compliance.

Article 4 of the NEC proposal requires Member States to limit their annual emissions of SO2, NOx, NMVOC, NH3, PM2,5 and CH4, to meet their reduction commitments applicable from 2020 and 2030, and establishes intermediary objectives for 2025. Article 6 requires Members States to adopt, implement and regularly update their national air pollution control programmes (NAPCPs), describing how their reduction commitments shall be met. Annex III of the proposal provides guidance on the measures to be adopted.

Of particular relevance for the objectives of the Nature Directives is Article 8 of the NEC proposal, which requires Member States to monitor, where practicable, the adverse impacts of air pollution upon water and terrestrial ecosystems. Member States are entitled to make use of monitoring systems established under other EU instruments. There are no explicit links in the revised NEC proposal to the EU legislation on nature protection.

[453] Proposal for a Directive of the European Parliament and of the Council on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC, 18.12.2013, COM(2013) 920 final.

8.3.3.5.2 Synergies

Atmospheric deposition of the pollutants responsible for acidification and eutrophication is additional to the current diffuse pollution from non-air sources e.g. from discharges to surface water and groundwater. Given that diffuse pollution is a key factor for the loss of biodiversity, the reduction in levels of atmospheric pollution required under the NEC Directive would contribute to achieving the objectives of the Nature Directives.

8.3.3.5.3 Challenges

Unlike the other EU legal instruments, stakeholders did not consider the NEC Directive to be coherent with the Nature Directives, with eight of 12 respondents citing inconsistencies. Both NGOs and Member States provided specific views in relation to the lack of ambition of the coherence between the NEC Directive and the Nature Directives. For example, the German stakeholders noted that the aims of the NEC Directive to reduce diffuse pollution on Natura 2000 sites and elsewhere, are not ambitious enough to meet the objectives of the Nature Directives. The 'critical loads' of pollutants to habitats are currently exceeded in 70% of the Natura 2000 territory in Europe. According to (Slootweg et al, 2014), the Commission proposals for a revision of these ceilings remains insufficient to comply with the critical loads in all sites.

8.3.4 Key findings

- The coherence of the objectives of the Nature Directives with the objectives of the WFD, the MSFD, the FD and the EU Adaptation Strategy is generally considered adequate. Despite their different objectives, these Directives have the common goal of environmental protection and maintenance. The Nature Directives aim to achieve Favourable Conservation Status - or equivalent - of the listed habitats and species which they seek to protect. The WFD aims to achieve 'Good Ecological Status' (or similar) of rivers, lakes, transitional waters and coastal waters and good quantitative status of groundwater. The MSFD aims to achieve 'Good Environmental Status' for marine waters. The objectives under the FD and EU Adaptation Strategy are more descriptive, but nonetheless coherent with the objectives of the Nature Directives.
- The differences between the Nature Directives, the WFD and the MSFD have led to conflicts in implementation, although the current legal framework enables solutions through better cooperation and dialogue. An EU level process to develop a common agenda for nature, biodiversity, marine and water policies is ongoing, with the aim of improving such coordination. Better coordination is expected to reduce the administrative burden of reporting requirements for Member States.
- Examples of apparent conflicts in the implementation of the Nature Directives and the WFD relate to the restoration of heavily modified water bodies to a more natural state, as required by the WFD. While the Nature Directives allow for such restoration, stakeholders referred to the damage caused to existing habitats and species due to restoration measures, increasing costs and delaying projects with overall ecological benefits.
- NWRM are an important type of measure that can strengthen synergies between the Nature Directives, the WFD, the FD and the EU Adaptation Strategy. NWRM are multi-functional measures that aim to protect and manage water resources using natural means and processes, therefore building up Green infrastructure, for example, by restoring ecosystems and changing land use. The EU Policy Document on NWRM provides an overview of the synergies and challenges, while practical tools on NWRM are provided by the catalogue of measures and the practical guide.
- Good synergy is expected between the MSFD and the Nature Directives. The MSFD aims to achieve a Good Environmental Status of marine waters where these

provide ecologically diverse and dynamic oceans and seas. This status has 11 descriptors, the majority of which are directly related to marine biodiversity. In addition, under the MSFD, MPAs are to be designated, with some stakeholders stating that the management of MPAs will be coordinated between the competent authorities for the MSFD, the Nature Directives and the Common Fisheries Policy (CFP).

- While the EU Adaptation Strategy only refers briefly to ecosystem-based adaptation, the importance of biodiversity for adaptation to climate change was highlighted by most respondents to question C.9. Natura 2000 sites are considered to be natural solutions for mitigating and adapting to climate change in the Commission 'Guidelines on climate change and Natura 2000'. A substantial number of good practices were highlighted by the stakeholders, such as the peatland protection projects, with benefits for nature conservation, carbon sequestration (climate mitigation) and flood prevention (climate adaptation). Projects on flood and drought risk management were also cited as examples of adaptation measures. In conclusion, climate change adaptation is in an early stage and it remains to be seen how future efforts to adapt will reinforce or undermine the implementation of the Nature Directives.
- The coherence of the Nature Directives with the NEC Directive is considered to lack ambition, with the ceiling to reduce diffuse atmospheric pollution considered insufficient to meet the objectives of the Nature Directives.

8.4 C.4 - To what extent do the Nature Directives complement or interact with other EU sectoral policies affecting land and water use at EU and Member State level (e.g. agriculture, regional and cohesion, energy, transport, research, etc.)?

C.5 - How do these policies affect positively or negatively the implementation of the EU nature legislation?

8.4.1 Interpretation and approach

Questions C.4 and C.5 are jointly addressed as they relate to the same EU policies and the mandate for the Fitness Check links them together. While the focus of the first question is on coherence in legislation and policy documents, the focus of the second is on implementation of policy provisions. The assessment covers the Common Agricultural Policy (CAP) and the Cohesion Policy, as well as policies covering the energy, fisheries, non-energy extractive industries, research and transport sectors. The EU legislation and policies governing these sectors can have significant impacts on the implementation of the Nature Directives and the capacity to achieve the objectives, particularly with regard to development activities involving land use and infrastructure. Some sectoral policies present opportunities for achieving operational objectives, such as the need to promote research and education or securing funding required to achieve Favourable Conservation Status.

Four judgement criteria have been used in the analysis of these questions. With regard to question C.4, the analysis concentrates on the following judgement criteria:

- The extent to which sectoral policies take into account EU nature objectives or other aspects of environment or sustainability in their own objectives.
- Whether sectoral policies have provisions allowing for consideration of nature/biodiversity impact (stemming from both legal requirements of the Nature Directives and their own policy objectives).

This includes an assessment of the content of the relevant EU sectoral legislation and policies, examining the extent to which they support or contradict the objectives of the Nature Directives, and outlining the main reasons for any lack of consistency.

Question C.5 looks at practical implementation and concentrates on the following judgement criteria:

- Sectoral policies are implemented in practice in a way that is compatible with the objectives of the Nature Directives.
- The extent to which the requirements of the Nature Directives impact the implementation of the sectoral policies, if applicable.

The analysis presents examples where specific policies exert a positive or negative influence on the implementation of the Nature Directives, including, where relevant, the implementation of EU funding programmes.

The answers to these questions are divided into subsections corresponding to each of the seven sectoral policy areas mentioned above. Each subsection contains information on policy provisions relating to the objectives of Nature Directives (question C.4), followed by a description of the implementation issues that are relevant for these policy provisions (question C.5).

8.4.2 Main sources of evidence

Sources of evidence varied considerably across the sectors, both for information provided through consultation, as well as the relevant studies and reports.

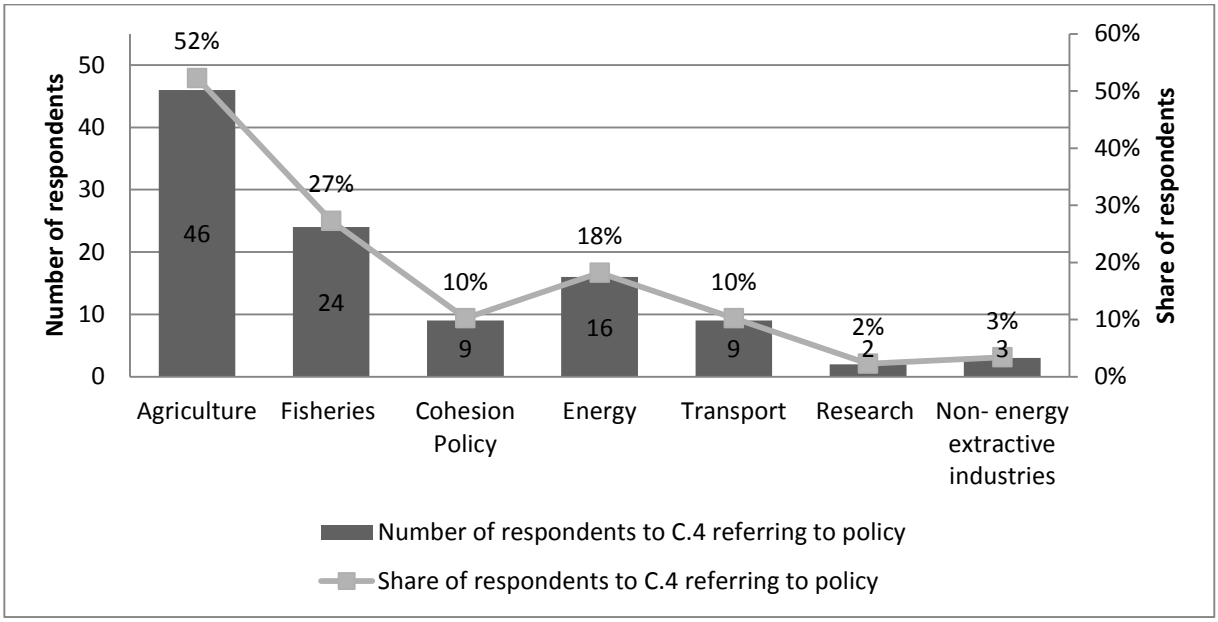
The review of documentary sources relied, first of all, on EU legislation and policy documents relating to each of the sectors, including Guidance documents and other sources of legal and policy interpretation. Additional literature sources - suggested by the stakeholders in many cases - complemented this assessment.

Responses to the evidence gathering questionnaire were relatively limited in number and extent of evidence provided. A total of 75 Member State level stakeholders replied to question C.4 (67% of total) and 61 responded to question C.5 (54% of total). At the EU level, 13 stakeholders replied to C.4 (54% of total) and 12 responded to C.5 (50% of total). Replies did not address all sectors consistently.

Agriculture was addressed most frequently, followed by fisheries. Figure 21 and

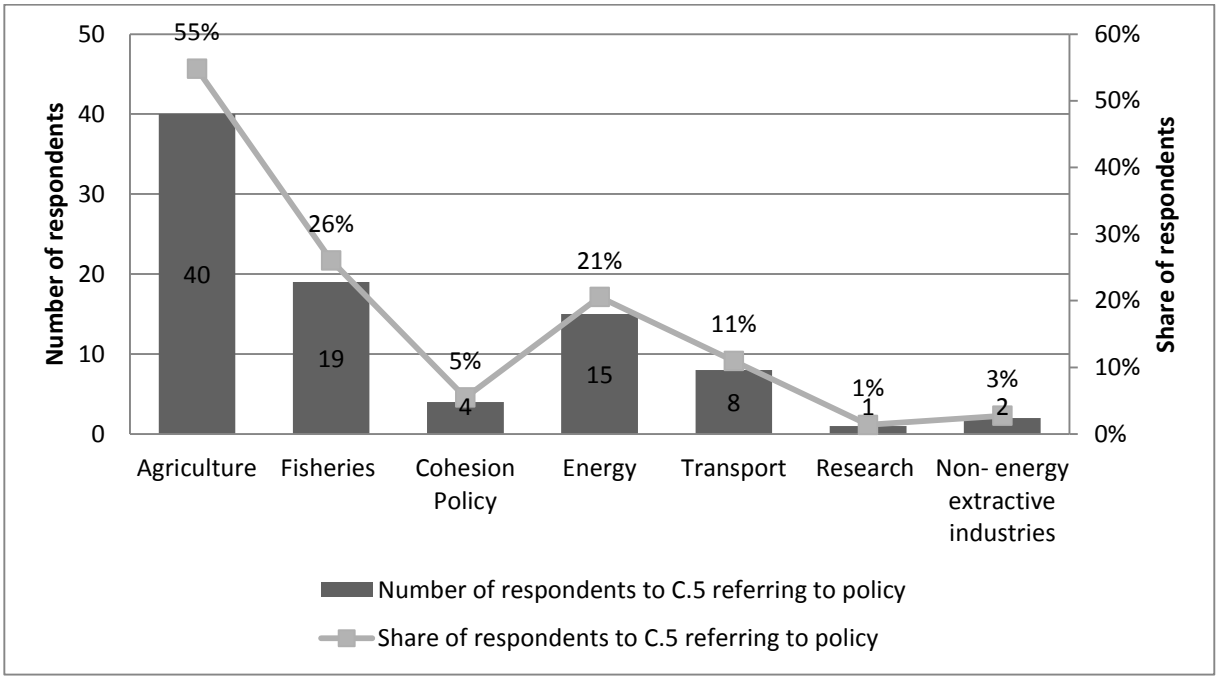
Figure 22 below show the rate of response to questions C.4 and C.5 by policy sector[454].

Figure 21 Responses to question C.4 by policy sector addressed



[454] The response rate is calculated by dividing the number of stakeholders referring to a given policy by the number of stakeholders; all types of respondents are aggregated.

Figure 22 Responses to question C.5 by policy sector addressed



When examined by individual sector, the number of replies is relatively low compared to other questions. Most stakeholder responses consisted of general opinions about the impact of the sectors on nature and biodiversity, with some citing individual cases where such impacts occurred. A limited few, mostly from EU level NGOs or business, gave more detailed explanations and evidence to support their views. General conclusions from the stakeholder consultation for each policy sector were difficult to infer.

Coherence with EU sectoral policies was also addressed in the online public consultation. Q10 asked whether EU policies in the relevant areas generally support the objectives of the Nature Directives. Responses varied considerably across types of respondents, with those from the business sector much more likely to believe that sectoral policies are supportive of the Nature Directives than individuals, NGOs or government. These responses are also considered within the analysis of evidence.

8.4.3 Analysis of the question according to available evidence

8.4.3.1 Common Agricultural Policy

8.4.3.1.1 Introduction and sources of information

Agriculture has a major influence on the EU's biodiversity, since a substantial number of semi-natural habitats listed in Annex I of the Habitats Directive, as well as many EU protected species, are affected by agricultural management. Many depend on low intensity traditional farming systems, including those often referred to as High Nature Value (HNV) systems (European Commission, 2014i)[455]. Some species covered by the Nature Direc-

[455] High Nature Value farmland can be defined as areas where agriculture is a major (usually) dominant land use and that supports or is associated with either a high species and habitat diversity, or the presence of species of European, and/or national, and/or regional conservation concern or both (Beaufoy and Cooper, 2008; Cooper et al, 2007; Oppermann et al, 2012). HNV farmland includes most of the farmland within Natura 2000 areas and other farmland with species and habitats listed in the Annexes of the Nature Directives, but can in-

tives, such as farmland birds, occur in a wider range of farmland habitats. The conservation management of such species (as well as many Annex I habitats) outside Natura 2000 sites is therefore important for achieving and maintaining Favourable Conservation Status. As indicated in the 2015 State of Nature report (EEA, 2015a), and discussed in relation to question R.1 (see section 7.1), there is strong evidence of widespread historic and ongoing declines in biodiversity in agricultural habitats. These appear to be mainly as a result of agricultural improvements, intensification and specialisation, but also agricultural abandonment, primarily in some HNV areas. Consequently, for example, only 11% of Annex I grassland habitats are in Favourable Conservation Status (the third lowest of any habitat group).

Given the severity of this situation, the interactions between the Common Agricultural Policy (CAP) and the implementation of the Directives are analysed in depth. However, it is important to bear in mind that pressures on agriculture-related biodiversity result from several drivers, including technological and market developments, and ongoing structural adjustments in agriculture, as well as policy interventions. It is often difficult to distinguish between the impacts of the CAP *per se* and these other agriculture related factors.

This analysis aims to assess the coherence and interaction of the CAP with the Nature Directives' objectives (as described in the intervention logic in section 2.3) according to the objectives and content of the current CAP legislative framework for 2014-2020. .

However, most of the available evidence of the effects of the CAP on the implementation of the nature legislation refers primarily to the implementation of the legislative framework for 2007-2013 (as shown, for example, in the 2015 State of Nature report). While changes in the 2014-2020 CAP that may affect findings from the previous period are identified below, it can be difficult to draw reliable conclusions on many of the revisions as there is as yet little evidence of their impact on implementation.

The coherence of the Nature Directives with the EU Forest Strategy and Multi-annual Implementation Plan are covered separately. However, as rural development programming (RDP) is the main EU level instrument for funding the implementation of the EU Forestry Strategy and Plan, RDP measures applicable to forestry are considered in this section.

The analysis relies on a literature review carried out by the consultants and the evidence supplied by the respondents to the evidence gathering questionnaire; 46 respondents referred to the CAP in their response to C.4, and 40 in their response to C.5. The analysis also considered relevant evidence submitted under other questions, as well as additional evidence from the literature review. The literature review included the Commission guidance on Natura 2000 and farming (European Commission, 2014i) and Natura 2000 and forestry (European Commission, 2015b). The online public consultation did not ask directly about coherence between the Nature Directives and the CAP, so the responses cannot be used to draw conclusions on this question.

In line with the judgement criteria defined for this question, the assessment firstly analyses the extent to which the CAP is potentially compatible with and complementary to the objectives of the Nature Directives; and secondly, analyses evidence of the actual effects of the CAP on the implementation of the Directives.

8.4.3.1.2 Complementarity of objectives and interactions

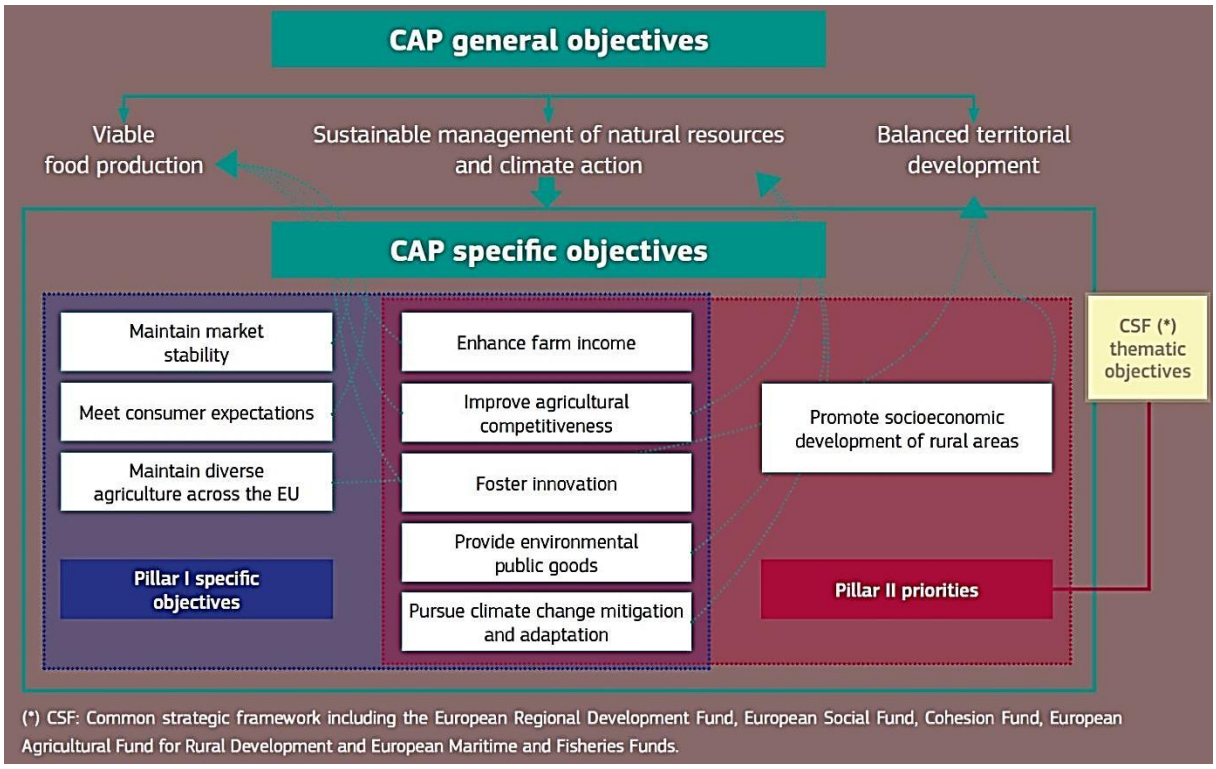
Over time the CAP has evolved to respond to some of the negative impacts that agriculture has had on biodiversity, as discussed under question R.1 (see section 7.1). Specific priorities and a suite of measures have been introduced to support positive environmental management, investments, advice and training within Pillar 2, as well as the introduction of cross-compliance requirements, the requirement for Member States to set up a

clude further areas characterised by a mosaic of low intensity agriculture and natural and structural elements and/or a high proportion of semi-natural vegetation and/or other species of conservation concern

Farm Advisory Service covering biodiversity issues, and the recent introduction of greening measures under Pillar 1.

The overarching objectives of the current CAP for 2014-2020 are: viable food production, the sustainable management of natural resources and climate action, and balanced territorial development. More specific objectives that can contribute to one of more of these overarching objectives are set out in Figure 23.

Figure 23 Relationship between CAP general and specific objectives



Source: (European Commission, 2015f)

These objectives are similar to those of the 2007- 2013 framework. The CAP's environmental objective of sustainable management of natural resources and climate action now spans both Pillar 1 and Pillar 2 and should, in principle, enable complementarity with the objectives of the Nature Directives. There is a new monitoring and evaluation framework set up for the first time covering both pillars to help to assess the performance of CAP and its main instruments including in relation to the environment. However, the result and target indicators are not of direct relevance to the objectives of the Nature Directives see section 5.2.3.2.3 for further discussion).

To ascertain the extent to which the CAP interacts with and complements the Nature Directives, examination of the more detailed priorities under each Pillar and the intervention logic of each specific measure is required. The CAP primarily uses financial support or incentive measures to achieve its objectives, some of whose conditions have a bearing on biodiversity, such as cross-compliance. The cross-compliance mechanism places conditions on all CAP area-based agricultural payments, whereby recipients of payments must adhere to a baseline of environmental, hygiene and other standards.

In addition to cross-compliance requirements, the 2014-2020 CAP incorporates environmental objectives and associated provisions into Pillar 1 through its 'greening measures'. Farmers entitled to Pillar 1 direct payments must implement the measures on the whole eligible area of their holding. Organic farmers are deemed to comply automatically with these requirements, while those participating in the small farmers' scheme are exempt. Land managers farming land within Natura 2000 sites (or catchments covered by the WFD) are only required to comply with the greening measures insofar as these are com-

patible with the requirements set under the Birds, Habitats or Water Framework Directives. The measures comprise maintenance of permanent grassland, crop diversification, and the provision of Ecological Focus Areas (EFAs) or equivalent practices, intended to provide direct or indirect benefits for biodiversity[456]. EFAs should comprise at least 5% of eligible arable land (applicable if there is more than 15 ha of arable land on the farm).

For the 2014-2020 period, managing authorities must align their RDPs to the EU priorities for rural development including **Union priority 4 which integrates the objectives of the Nature Directives**: '*restoring, preserving and enhancing ecosystems related to agriculture and forestry, with a focus on restoring, preserving and enhancing biodiversity, including in Natura 2000 areas, and in areas facing natural or other specific constraints, and high nature value farming, as well as the state of European landscapes; improving water management …; … improving soil management*'[457]. Managing authorities must also allocate at least 30% of their RDP funding to measures that support environment and climate change objectives[458]. Further complementarity with the Nature Directives is achieved through the requirement that managing authorities take account of the specific needs of Natura 2000 areas in the overall design of their RDPs and specifically according to the Prioritized Action Framework in their RDP needs assessment[459][460].

The implementation of the Nature Directives is primarily supported by the agri-environment-climate, forest-environment and Natura 2000 measures. In principle, other RDP measures can also aid implementation, generally to a lesser extent. These include non-productive investments and rural heritage under basic services and village renewal (for complete list see European Commission, 2014i; Kettunen et al, 2014b). The Commission has recently produced Guidance documents on Natura 2000 and farming and Natura 2000 and forestry which address implementation of CAP measures within Natura 2000 sites, as well as for EU protected habitats and species in the wider countryside (including other HNV areas). Guidance is also available at the national level in some Member States (e.g. Ministry of Environment & Spatial Planning, 2015; NABU, 2015). Case studies of positive investments in particular Natura 2000 sites and other sites with EU protected habitat areas and species have been published (e.g. European Commission, 2014i; SEO, 2014).

The EU priorities for rural development of enhancing farm viability and competitiveness, promoting food chain organisation including competitiveness, and promoting economic development in rural areas, create scope for supporting activities that are not necessarily compatible with the Nature Directives, including agricultural and forestry investments and actions that have the potential to damage certain EU protected habitats and species. To avoid this, a number of safeguards and processes have been put in place within the 2014-2020 regulations to avoid the funding of damaging activities[461]. At the broad level, the Rural Development Regulation states that rural development priorities should be pursued in the framework of sustainable development and the aim of protecting and improving the environment, taking into account the polluter pays principle[462][463]. RDPs must be subject to SEA before submission to the Commission, as should any subsequent major programme changes that could affect Natura 2000[464]. RDPs are also subject to *ex ante* conditions, including ensuring arrangements for the effective application of the EIA Regulation, and the requirement to set minimum requirements for fertiliser use, pesticide use,

[456] Regulation (EU) No 1307/2013 Preamble paragraph (44).
[457] Member States must select at least four of the six EU priorities for rural development, and all Member States have included Priority 4 because the compulsory agri-environment measure is mainly programmed under Priority 4.
[458] Agri-environment-climate, organic farming payments, payments to areas facing natural or other specific constraints, payments for forestry, payments for Natura 2000 areas and climate and environment-related investment support. Regulation (EU) No 1305/2013 Preamble paragraph (22).
[459] Regulation (EU) No 1305/2013 Preamble paragraph (24).
[460] Commission Implementing Regulation (EU) No 808/2014 Annex I 4(b).
[461] Certain safeguards were also in place in the previous programming period but these are not analysed in this section
[462] Regulation (EU) No 1305/2013 and Council Regulation 1698/2005.
[463] Preamble paragraph 5 of the Regulation (EU) No 1305/2013.
[464] Directive 2001/42/EC Article 3(2)a and 3(2)b.

and water use management within RDPs[465]. This contributes towards policy coherence. However, it should be noted that there is evidence from some Member States / regions that EU protected habitats and species have been damaged by RDP and other agricultural activities because EIAs were not required either due to high area thresholds being used in screening procedures or to incorrect legal transposition (Baldock et al, 2013a; COWI, 2009b; King, 2010; Prommer, 2012).

Planned agricultural and forestry investments on Natura 2000 sites should be subject to an Appropriate Assessment (AA) where there is a possibility of significant damage to EU protected species and/or habitats. This is discussed further in in section 5, as some stakeholders note that the impacts of agricultural developments are not always or consistently subject to AA.

For the 2014-2020 period, Member States had the possibility of transferring up to 15% of direct payment funds from Pillar 1 to Pillar 2, thereby increasing the budget that can be spent on RDP priorities, including the environment. Alternatively, Member States could transfer up to 15% of funds from Pillar 2 to Pillar 1, thereby increasing the budget for direct payments. Whilst Pillar 1 measures are funded entirely from the EU budget, Pillar 2 measures require co-funding from Member States[466,467]. A transfer from Pillar 2 to Pillar 1 therefore also decreases the amount of Member State funding allocated to rural development. (see section 8.6 for a discussion of the integration of the Natura 2000 funding obligation into the European Agricultural Fund for Rural Development (EAFRD), and section 6.2 for an analysis of access and constraints to funding from EAFRD.)

Most of the respondents to the evidence gathering questionnaire who referred to the CAP gave a mixed response which referred to both positive and negative aspects. Most respondents addressed aspects of implementation rather than coherence of the CAP legislative framework, or referred only to coherence of Pillar 1 or of Pillar 2. Some responses referred to the impacts of agriculture or forestry rather than the CAP. It is therefore not possible to categorise most of the responses to C.4 and C.5. Of the 26 respondents whose response addressed overall coherence of the CAP legislative framework with the nature directives, seven responses (three NGOs, two nature authorities, one agriculture authority, one agriculture & forestry sector) thought the CAP is coherent with and supports the Directives, and three responses (NGOs) did not think the CAP is coherent with the Directives, whilst the other responses were inconclusive. Of the five respondents whose response addressed coherence of Pillar 1 objectives and measures, four (three NGOs) stated that Pillar 1 measures are not coherent with or support the Directives, whilst one response was mixed. Of the 19 respondents who addressed coherence of Pillar 2 objectives and measures, 14 stated that they are coherent, whilst 5 were equivocal. Two respondents (agriculture & forestry sector) considered the implementation of the Nature Directives through the CAP to have insufficiently recognised other land management objectives and, in some cases, to have impeded the achievement of these objectives.

Most of the arguments and evidence supplied by the respondents referred to the effects of implementation of measures under the CAP rather than the complementarity of the objectives, therefore the next section explores this in more detail.

8.4.3.1.3 Effects of the CAP on implementation of the Nature Directives

This section reviews the evidence of the impact of specific measures within the CAP on the implementation of the Nature Directives. We begin with the most relevant rural development (Pillar 2) measures, followed by direct payments under Pillar 1 and cross-compliance. Much of the literature on these topics stems from the period up to 2014. For the current period we have relied on respondent positions, available information on Member State implementation decisions, and some recent publications hypothesising the

[465] As listed in Annex V of Regulation EU No 1305/2013.
[466] Through the European Agricultural Guarantee Fund (EAGF).
[467] Funded from the European Agricultural Fund for Rural Development (EAFRD).

potential impacts of certain measures. 21 out of 25 respondents to the evidence gathering questionnaire who addressed implementation of Pillar 1 measures considered that they hinder the objectives of the directives, and four gave mixed answers. Of the 31 respondents who addressed implementation of Pillar 2 measures, 14 stated that they support the objectives of the directives, 12 considered that they are failing to support the objectives of the directives, and five gave mixed answers. A number of the NGO respondents referred to the negative biodiversity impacts of some RDP measures, including investments in drainage, irrigation, farm modernisation, land consolidation, afforestation and other infrastructure (Boccaccio et al, 2009)[468].The evidence provided by respondents or identified by the consultants on effects of the afforestation and irrigation measures is reviewed below. Other impacts cited by respondents referred to land consolidation investments but little evidence was provided.

Agri-environment schemes

As one of two measures in Pillar 2 whose implementation is compulsory for all Member States, the **agri-environment-climate measure** is the primary policy measure used to incentivise farmers to adopt management practices that are beneficial to biodiversity, including EU protected habitats and species (European Commission, 2014i; Keenleyside et al, 2012; Poláková et al, 2011)[469]. As discussed under section 6.2, agri-environment schemes provide by far the largest source of EU funding for supporting conservation management activities for EU protected habitats and species within terrestrial Natura 2000 sites, as well as in other HNV areas and elsewhere.

The measure allows Member States to develop locally adapted voluntary schemes that reflect different bio-physical, climatic, environmental and agronomic conditions. Schemes vary greatly in their design, the level of payment offered, the degree of focus on biodiversity and the stringency of the environmental requirements. Higher-level (i.e. more demanding) agri-environment-climate schemes often provide the greatest benefits for EU protected habitats and species because their implementation allows flexibility for individually tailored contracts at farm or site level, including specific provisions for management of the target species and habitats, provided skilled personnel are available on the ground and sufficient advisory support is provided (European Commission, 2014i; Poláková et al, 2011).

There are many documented examples of improvements in the status of EU protected habitats and species as a direct result of targeted agri-environment schemes (eg Batáry et al, 2015; Broyer et al, 2014; European Commission, 2014i; MacDonald et al, 2012; Perkins et al, 2011; SEO, 2014; Whittingham, 2011).

Evidence shows that more funding (Poláková et al, 2011; Yang et al, 2013) and targeting of schemes to species and habitats (Davey et al, 2010; O'Brien and Wilson, 2011) is required to increase the scale of the agri-environment scheme impacts and to achieve more pronounced improvements in population status (Arponen et al, 2013; Broyer et al, 2014; Holland et al, 2015; Kleijn et al, 2010; Perkins et al, 2011; Whittingham, 2007). Nature conservation authorities in Cyprus, Belgium (Wallonia), Ireland, the Netherlands (RLI, 2013) and Slovenia indicated in their questionnaire responses that they consider the targeting of agri-environment schemes to Natura 2000 areas to have been inadequate.

Research has also highlighted the need to improve the design of management requirements in relation to conservation objectives for some rare or declining species (Blomqvist et al, 2009; Kleijn et al, 2006; Zimmermann et al, 2011). Some studies recommend greater focus on incentivising delivery of results as a means of achieving better outcomes for biodiversity (Allen et al, 2015; Blainey, 2013; de Snoo et al, 2013) and this is permit-

[468] NGOs from Estonia and Spain in response to C.4/C.5 in evidence gathering questionnaire; NGOs from Spain & Slovenia in response to S.3 in evidence gathering questionnaire, European NGOs in response to various questions in the evidence gathering questionnaire.
[469] The other compulsory measure is LEADER.

ted under the CAP legislation. Many Member States recognise this and are planning improvements.

The extent to which species recovery and other goals can be achieved by measures on individual farms is found to vary. In many settings, the impact of schemes on individual farms is limited by the structure and management of the surrounding landscape (Batáry et al, 2015; Concepción et al, 2008), and very few schemes have managed to achieve landscape-scale coverage or impact (Baker et al, 2012; Davies et al, 2005), although this may be underestimated because evidence gaps preclude many conclusions about large-scale impacts (Hiron et al, 2013).

Some respondents representing land managers, e.g. Copa-Cogeca (Denmark), consider there to be a need for simpler, less demanding scheme implementation and more funding targeted at Natura 2000 farmland. For example, on highly productive farms on which low intensity grazing does not contribute to production, maintaining management of small areas of HNV grassland with EU protected habitats or species may entail high costs for the farmer. The same respondents also reported that complex and multiple rules, as well as the fear of severe financial sanctions for minor infringements, are a deterrent to engagement with nature conservation schemes. However, itis unclear if this is attributable more to Pillar 1 requirements or to agri-environment scheme requirements.

Changes in the 2014-2020 period

Agri-environment schemes continue to provide the largest source of EU funding for supporting conservation management activities for EU protected habitats and species within terrestrial Natura 2000 sites, as well as in other HNV areas and elsewhere. However, as discussed under section 6.2, there have been reductions in agri-environment scheme budgets in the current period in a number of Member States, with NGOs in several Member States raising concerns about this in the evidence gathering questionnaire.

In the 2014-2020 framework, the cooperation measure introduces the possibility to fund collaborative implementation of agri-environment schemes which can achieve landscape-scale impacts. Also, improvements have been made in the monitoring and assessment of the outcomes of agri-environment programmes in some Member States, for example in England (Natural England, 2013), which address previous criticisms of weaknesses in monitoring and assessment (European Court of Auditors, 2011a).

Member States can apply specific conditions to their agri-environment-climate programmes to protect EU protected habitats and species, and apply payment cuts in cases of non-compliance[470]. For example, the Austrian NGOs cited an improvement in the conditions attached to the 2014-2020 agri-environment programme to prevent the damage that was occurring to EU protected habitat types through intensification of management (Wanninger et al, 2013) [471].

Non-productive investments (now part of investment in physical assets)

Agri-environment schemes can be supported by aid for non-productive investments, including restoration actions such as tree and hedge planting, removal of undesired vegetation, re-establishment of semi-natural vegetation and hydrological measures[472]. For example, the Danish agriculture authority reported satisfactory and growing uptake of non-productive investment support for habitat restoration, which they attribute to the 100% compensation rate and local authorities pushing for action in Natura 2000 areas.

[470] Article 28 paragraph 3 of Regulation EU No 1305/2013.
[471] Areas of Annex I habitat types 6170, 7230, 6260, 1530, 2340, 6210, 6230, 6410, 6520, 5130, 6240, 6250, 6130, 6440, 6510 receiving agri-environment-climate payments must be cut or grazed at least once annually but cannot be mown more than twice annually, irrespective of whether the mowing is funded under the specific scheme. Austrian Rural Development Programme 2014-2020 Annex 8.10.2a General ex ante requirements and standards applying to the agri-environment-climate programme ÖPUL, organic farming measure, Natura 2000/WFD measure, animal welfare measure.
[472] Previously the non-productive investments measure, in 2014-2020 part of the investment in physical assets measure.

A recent Auditors report found that 71% of audited projects contributed to the achievement of agri-environment objectives such as landscape and biodiversity protection (European Court of Auditors, 2015). The availability of funding for large carnivore damage prevention measures using the investment measure was mentioned by the Greek NGO respondents, and evidence from the literature confirms its importance for the acceptance of large carnivores elsewhere in the EU (Linnell, 2013; Majic, 2014).

Natura 2000 measure

Where the conservation objectives for a Natura 2000 site impose clear legal restrictions on the agricultural or forestry use of the site which exceed those under cross-compliance, Member States can use the Natura 2000 measure to provide compensation to land managers as a result of the site designation and the restrictions based on which payments can be granted[473]. The application of the measure is therefore contingent on the existence of a site management plan or other provisions that set out the conservation objectives for the site and describe the requirements from which the real economic costs and income foregone can be calculated.

The Natura 2000 measure was implemented in 2007-2013 by 13 of the 27 Member States, but by 2012 payments had been made on only 3.9% of the agricultural area of the Natura 2000 network (ENRD, 2014)[474][475]. There appears to have been a variety of reasons for its restricted use, including some Member States' preference to concentrate resources on paying for voluntary commitments beyond legal requirements applying to Natura 2000 sites by using the agri-environment-climate measure. In others, implementation was limited by the fact that the required conservation objectives and plans were not established (see section 5.1).

Little information was provided in the evidence gathering questionnaires on the impact of the Natura 2000 measure, where it has been applied. However, the Hungarian nature conservation authority and NGOs reported that the compensation payments for grasslands and forests within Natura 2000 have increased the acceptance of Natura 2000 site designation amongst landowners.

Rural heritage measure (now part of Basic Services and Village Renewal)

The rural development measure for rural heritage (now part of basic services and village renewal) and LEADER can be used to support Natura 2000 site management planning, site management, species and habitat monitoring, and information and awareness-raising activities to promote Natura 2000 management and protection. This was highlighted by the French nature authority, where the measure was used quite widely for Natura 2000 site management planning. The measure also offers the possibility of setting up and supporting individually tailored farm or site management agreements, either within Natura 2000 sites or targeted to EU protected habitats and species more broadly. This was highlighted by Austrian NGOs, where 54% of the projects funded directly contributed to a Natura 2000 site (Pinterits et al, 2014). It has also been widely used in Germany to support schemes delivered by a range of organisations, including nature conservation charities or farmer associations, complementing agri-environment schemes (Boller et al, 2013; DVL, 2007; Metzner, 2013).

[473] Annex I Part 1 Article 8(2)(e)11 in Council Implementing Regulation (EU) No 808/2014 of 17 July 2014.
[474] Hungary, Ireland, Bulgaria, Germany, Spain, Latvia, Estonia, Belgium, Lithuania, Czech Republic, Austria, Italy, Slovenia.
[475] 1,138,053 supported ha on a total Natura 2000 network area in 2012 of 76,814,198 ha, of which 38% is agricultural land. No data are available on the amount of forest land supported.

Other measures that can support agriculture in Natura 2000 and in areas with EU protected habitats and species

A range of measures can be used to support extensive farming, including HNV systems, both in Natura 2000 and in areas with EU protected habitats and species, by building capacity and adding value to produce, provided they are targeted and tailored to requirements. These can include organic farming payments, farm advice and knowledge transfer, farm and business development support, producer groups, and participation by farmers in quality schemes for agricultural products. While there are numerous examples of positive impacts on Natura 2000 sites and EU protected species and habitats from the use of these measures, (e.g. (Poláková et al, 2011)), an overall assessment of their impacts is not possible.

Measures for forests

The forest measures can support a range of forestry practices that benefit EU protected habitats and species as long as potential negative impacts are avoided (European Commission, 2015a)[476]. However, in the past, some forest investments have had negative effects on EU protected habitats and species. For example, the fragmentation of Capercaillie habitat by the creation of forest roads was mentioned by the Slovak NGO respondent.

Changes in the 2014-2020 period

New RDPs must set minimum standards for forest investments, including requirement for a forest management plan (or equivalent) in line with sustainable forest management principles above a minimum holding size, set by the Member State[477].

Afforestation

In some circumstances afforestation of agricultural land can be expected to have positive impacts on the status of some EU protected species, both inside and outside Natura 2000 areas, by restoring deforested habitat, providing buffer zones and/or connecting small isolated forest patches. It is not clear how much afforestation has been funded within Natura 2000 areas, and in most Member States no data are available on the previous use of land afforested under the RDP measure, nor are there records of the presence of Annex I habitats or EU protected species on afforested land, or of landscape context, planting or maintenance. It is therefore not possible to draw conclusions on whether afforestation has had predominantly positive or negative impacts on EU protected habitats and species (Elbersen et al, 2014).

A survey of experts in the Member States that have made significant use of the afforestation measure found that those that targeted it to arable and other cropped land reported no negative effects (Denmark, Poland, Romania)[478].Three Member States reported unquantified benefits for forest birds from the creation of new native woodlands (Ireland, UK, Spain) and Spain reported unquantified extension of forest habitat in areas with Brown Bear populations. The same survey reported unquantified evidence that some non-forest Annex I habitat areas (as well as semi-natural grazed habitats more generally), were lost to EAFRD-funded afforestation since 1992 in the Czech Republic, Estonia, Hungary, Ireland, Lithuania, the UK and Spain, although the extent and impact of this is not established (Elbersen et al, 2014).

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[476] Principally M8-3 Prevention of damage to forests, M8-5 Investments improving the resilience and environmental value of forest ecosystems, M15.1 forest-environmental & climate commitments, also afforestation, agro-forestry etc.

[477] Regulation (EU) No 1305/2013 Article 21(2). Sustainable forest management as defined by the Ministerial Conference on the Protection of Forests in Europe of 1993.

[478] 15 Member States have made significant use of the measure since 1992, and only five have an area afforested under the CAP that is above 1% of the UAA (Portugal 8.41% of UAA afforested, Ireland 5.06% of UAA afforested, Spain 2.83% of UAA afforested, UK 1.73% of UAA afforested, Hungary 1.6% of UAA afforested).

Changes in the 2014-2020 period

In 2014-2020, RDPs that use the afforestation measure must specify minimum environmental requirements, including the selection of species to be planted, of areas and of methods to be used, in order to avoid the inappropriate afforestation of sensitive habitats such as peatlands and wetlands, and negative effects on areas of high ecological value, including areas under HNV farming[479]. On Natura 2000 sites afforestation must be consistent with the site management objectives and agreed by the competent authority, but the provision does not mention environmentally sensitive or ecologically valuable grasslands (this omission could affect the protection of Annex I grassland habitats outside Natura 2000 sites).

Irrigation investments

There is evidence that, in the 2007-2013 period, some irrigation investments expanded the irrigated crop area without taking sufficient account of sustainability criteria or environmental impacts. An NGO review of EAFRD-funded investments in irrigation in Spain found that six out of eight irrigation projects led to an intensification of agricultural production, including an increase in irrigated agriculture and the introduction of double harvesting (WWF, 2015)[480]. Several projects were in irrigation areas that had been established illegally, thus indirectly legitimising irrigation rights that did not previously exist. The report did not specify impacts on biodiversity, but the intensification of management associated with the installation of irrigation in dry habitats is often associated with negative impacts on biodiversity (De Frutos et al, 2015).

Changes in the 2014-2020 period

In the 2014-2020 period, investments that result in net increases in irrigated area must be subject to an EIA[481].

Other infrastructure investments

Investments in drainage were possible under the measure for improving and developing infrastructure in the previous RDP period[482][483]. Although Member States had the option to exclude funding from Natura 2000 sites and require EIA, these safeguards were not always applied or implemented properly (see section 8.2 for further discussion, for example with reference to RDP investments in water resource management in Poland.).

Areas facing natural or other specific constraints (ANC) (previously Less Favoured Area LFA)

A large share of the farmland with EU protected habitats and species falls within areas of natural constraint. Compensation payments, therefore, provide additional support for farming systems in these areas[484]. However, these payments do not include any specific land management requirements that benefit biodiversity conservation (beyond adherence to cross-compliance). Some managing authorities have set minimum grazing levels in

[479] Annex I Part 1 Article 8(2)(e)(7) of Commission Implementing Regulation (EU) No 808/2014 and Article 6(a) of Commission Delegated Regulation No 807/2014 of 11 March 2014 supplementing Regulation (EU) No 1305/2013 of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and introducing transitional payments.
[480] The measure was designed to support the objective of increasing water use efficiency by funding investments to increase the efficiency of existing irrigation systems, rather than expand the overall area of irrigation; however, some RDPs did not include adequate safeguards (e.g. Andalucia, Spain) (European Court of Auditors, 2014b).
[481] Regulation (EU) No 1305/2013 Article 46.
[482] Measure 125 – Improving and developing infrastructure related to the development and adaptation of agriculture and forestry
[483] Changed to part of the investment in physical assets measure in the 2014-2020 period.
[484] In the 2009-2013 period these payments were made only under the Rural Development Programmes, but in 2014-2020 Member States have the option of supporting Areas with Natural Constraints also under Pillar 1. Currently Pillar 1 ANC payments are only being made by Denmark for its islands.

order to maintain both pastures and agricultural activity, but there are examples where minimum grazing levels were set at rates too high to maintain the conservation value of some semi-natural habitats[485].

No evidence appears to be available on whether the ANC measure is having a positive impact on the conservation status of European protected species and habitats, and it was not possible to assess how much ANC funding goes to Natura 2000 areas. The payments are not designed to favour Natura 2000 sites or other HNV areas over other producers in the areas concerned, and may, in some cases, provide higher payments to more intensively managed farms. For example, in Scotland LFA payments in the 2007-2013 period were highly differentiated by location and historic stocking levels (Keenleyside et al, 2014)[486].

Changes in the 2014-2020 period

The specifications for designating areas eligible for the measure have been tightened to ensure that they primarily correspond to objective natural constraints. However, there is still flexibility for Member States to assign the payments to large areas without setting specific conditions to ensure environmental benefits. For example, the NGOs in Poland have criticised the 2014-2020 Polish RDP as assigning around half of its RDP budget dedicated to environmental and climate issues to the ANC measure, without setting specific conditions for farming methods to qualify for receipt of payment within ANC areas other than cross-compliance[487]. According to a submitted analysis the lowland ANC regions include many areas with the national average or higher use of mineral fertiliser, and are therefore unlikely to be maintaining high levels of biodiversity on semi-natural grassland[488].

Direct payments and eligibility conditions

Direct payments for agricultural land under Pillar 1, together with the ANC payment, can play an important role in supporting the continuation of farming systems and associated habitats and habitat features that maintain EU protected habitats and species inside and outside Natura 2000. The most positive impact is likely to be in agriculturally disadvantaged areas, especially where the risk of land abandonment is high (Brady et al, 2009; Keenleyside et al, 2014; Keenleyside and Tucker, 2010). A study quoted by the Swedish nature conservation authority concluded that large areas of wood pasture habitat in Sweden would have been abandoned without the support of direct payments and the ANC/LFA payment (Hasund et al, 2014).

Detailed application rules, however, are important considerations, as they can limit the scope of this positive impact and cause perverse damaging effects in some circumstances. There is evidence that during 2007-2013 substantial areas of EU protected habitats were deemed ineligible for direct payments because of the presence of scrub, shrubs and trees (Hart and Baldock, 2011; King, 2010; Poláková et al, 2011). These are often characteristic features of EU protected habitats and an essential part of their biodiversity value, and the habitats are often used for grazing or other agricultural purposes, for example to provide additional forage (European Commission, 2014i). For example, around 60-70,000 ha heathland in Germany with less than 50% grass coverage (DVL and NABU,

[485] For example, the Navarra RDP for 2014-2020 sets a minimum grazing rate of 0.6 to 1 LU/ha for cattle, a rate which excludes extensive grazing practices. Medida 13 en PDR de Navarra 2014-2020. Available at: http://gobiernoabierto.navarra.es/sites/default/files/13_ayudas_a_zonas_con_limitaciones_naturales_o_especificas.pdf

[486] The more intensively farmed areas generally received higher payments because the minimum stocking densities were more likely to be met and the grazing category multipliers had the effect of reducing the area claimed on less productive land (no matter what its current stocking density was). Royal Society for the Protection of Birds (RSPB) Scotland February 2012. Areas Facing Natural or Other Specific Constraints – A paper for Scottish Government by RSPB Scotland.

[487] Greenpeace Poland, OTOP (Birdlife partner), World Wide Fund for Nature Poland. Letter to Commissioner Hogan June 30 2015. Submitted to supplement evidence gathering questionnaire.

[488] Assessment of the influence of payments for less favoured areas (LFA) - areas affected by natural or other specific constrains - on alleviating climate change or preventing the loss of biodiversity. Submitted by

2009), 25% of the total agricultural land in Estonia and two-thirds of the 1.6m ha of HNV farmland in Bulgaria, was ineligible for direct payments in the 2007-2013 period (Hart and Baldock, 2011). In contrast, some Member States took a broader approach and included large areas of actively-farmed pastures with scrub and trees in their eligible areas for direct payments, such as the UK (DVL and NABU, 2009) and France (Beaufoy et al, 2011). Eligibility issues that have excluded Annex I habitat areas from direct payments in the previous CAP period were raised by NGO respondents from Sweden (Blom, 2010), Spain and Northern Ireland in the UK. Direct payment support was not available for small farmers below a size threshold in 2007-2013; this was mentioned by the Romanian nature conservation authority as a problem for Natura 2000 in Romania.

Changes in the 2014-2020 period

The revised eligibility criteria regarding what constitutes agricultural land in the 2014-2020 CAP, particularly the broadening of the definition of permanent grassland to include herbaceous forage other than grasses, the presence of shrubs and/or trees, and the raised limit on the number of trees permitted per hectare to 100, has the potential to extend direct payments to some previously excluded farmland, supporting EU protected habitats and species[489]. Despite this, eligibility problems still exist in some Member States, for example for wood pastures. This appears to be related to the new rules on the measurement of tree density (using the coverage of the tree canopy rather than the trunk), which is linked to an increased emphasis on land cover data rather than use of data for classifying land use[490]. This in turn reduces the area of remaining land eligible for CAP payments. These issues are highlighted in Spain (Ruíz and Beaufoy, 2015) and Romania, where the deduction of tree canopy cover from payment rates seems to be leading to the felling of trees, potentially including veteran specimens of high biodiversity value (EFNCP, 2015). In contrast, the previous problems experienced in Sweden have improved, although some area is still excluded from direct payments and instead financed through agri-environment schemes (EFNCP, 2015). France and England (UK) have taken approaches that include wood pastures as eligible areas (EFNCP, 2015)[491]. There are reports that the eligibility of Annex I extensive grassland habitats with scrub is being affected by inappropriate timing of inspections and/or tighter requirements for control and inspection in Ireland (INHFA, 2015) and Northern Ireland and Wales in the UK (Hart and Radley, 2015).

Direct payments – other effects

The distribution of Pillar 1 direct payments between farms is related to a number of factors, including (in some regions) historic output levels, thereby providing lower levels of support per hectare on more extensively managed farms, which are the farms that play the greatest role in the management of EU protected habitats and species. This situation has become more balanced in the current period 2014-2020, as Member States progressively shift payments to a regional flat rate basis by 2019. Some voluntary coupled payments remain, and have the potential both to maintain grazing where it is required for EU protected habitats or to incentivise higher than desirable stocking densities unless adequate monitoring and safeguards are in place.

Although there is evidence that direct payments help to support the continuation of some HNV farming systems, for example in Ireland (Howley et al, 2012), some NGO respondents and academic literature suggest that decoupled direct payments are not the most efficient route for providing this type of support, as they are not designed for this purpose (Baldock et al, 2010; Matthews, 2012). Some NGO respondents consider that, even though decoupled from production, direct payments can provide the incentive and the

[489] Article 4(2) in Regulation (EC) No 1307/2013.
[490] The Spanish authorities are reclassifying many LPIS parcels originally classed as pastures with trees/shrubs as forest, thus removing those parcels from CAP Pillar 1 eligibility (Ruíz and Beaufoy, 2015). The guidance states that the only criterion is the land cover as interpreted from aerial photography and that farming use of the parcel should not be taken into account.
[491] For example in England, all scattered trees are regarded as part of the eligible area and claimants do not need to make any pro-rata deduction for tree cover (EFNCP, 2015).

means for agricultural improvements and intensification (e.g. drainage of semi-natural grassland followed by higher stocking rates) to continue beyond what would occur in an unsupported situation. Such an effect would generally have detrimental impacts on biodiversity. However, although there is some academic literature on wealth or risk-reducing effects (Mittenzwei et al, 2014), the effect is very difficult to measure and there appears to be no readily available evidence of whether or not direct payments increase levels of agricultural improvement and intensification. It was beyond the scope of this study to investigate this point in detail.

Cross-compliance: Statutory Management Requirements (SMRs) and Good Agricultural and Environmental Conditions (GAEC)

Coherence with nature and other environmental legislation of CAP Pillar 1 direct payments is enhanced by cross compliance (a mechanism that make payments subject to the respect of a set of basic rules related to the environment, public and animal health, as well as animal welfare). One SMR relates specifically to the Nature Directives. The European Commission reported in 2010 that the mandatory inclusion of information on cross-compliance in farm advisory systems had raised farmer awareness of their obligations under the Birds and Habitats Directives[492]. However, no evaluation has been carried out in recent years to assess what additional protection has been brought about through the application of the SMRs and GAEC standards[493]. Penalties in Natura 2000 sites can only be applied if the site has a management plan or equivalent instrument defining the relevant measures and compulsory obligations, so the deficits in management planning referred to under question S.1 limit the potential effectiveness of this measure[494]. However, in terms of implementation, some respondents to the evidence gathering questionnaire considered the penalty for cross-compliance infringements of up to 5% of the farmer's annual payment entitlement to be too low to be a deterrent against non-compliance[495]. An NGO report found almost no evidence of penalisation of farmers for habitat clearing in 12 Member States (Birdlife International, 2009).

Some questionnaire respondents mentioned that the GAEC standard on retention of landscape features was effective in preventing removal of such features. Anecdotal information pointed to the cutting down of hedges by some French farmers in response to temporarily weakened standards. For the 2007-2013 period there is some evidence that landscape features and vegetation features not protected by GAEC were removed from farmland in order to make the areas eligible for direct payments (cited in Poláková et al, 2011).

Changes in the 2014-2020 period

For the 2014-2020 period, the SMRs relating to the Birds and Habitats Directives have been simplified by removal of the reference to Birds Directive Article 5 prohibiting the deliberate killing, destruction or disturbance of birds, bird nests and eggs. A Cyprus NGO noted that the exclusion of Article 5 has cut short an enforcement action that sanctioned farmers with reduced payments who were repeatedly found with bird trapping materials

[492] European Commission. 2010. on the application of the Farm Advisory System as defined in Article 12 and 13 of Council Regulation (EC) No 73/2009. Report from the Commission to the European Parliament and the Council, European Commission, COM(2010)665, 2010.
[493] A review was carried out in 2007 of Member States' implementation of the previous cross-compliance framework as defined by Regulation 1782/2003 (Alliance Environnement 2007) but it was too early to assess the impacts of SMRs and GAEC standards on Natura 2000 sites and EU protected habitats and species.
[494] Member States can establish conservation measures and measures to avoid deterioration and disturbance using appropriate statutory, administrative or contractual measures (Habitats Directive Article 6(1)).
[495] The relevant payments include area-based direct payments under Pillar 1, payments to vineyards, and annual payments for afforestation, agroforestry, agri-environment-climate, organic farming, Natura 2000/WFD, areas of natural and other specific constraints, animal welfare, and forest-environment-climate. Article 4 in Council Regulation (EC) No 73/2009 and Article 92 in Regulation EU No 1306/2013.

on their land. In the UK, where several penalties for bird of prey poisoning have been imposed under the previous SMR, Article 5 now applies only to SPAs[496].

On the other hand, for the 2014-2020 period, the GAEC standard on retention of landscape features has been expanded to include a ban on cutting hedges and trees during the bird breeding and rearing season, thereby increasing the focus on protecting biodiversity. Species that nest in crops or on grassland, including a number of species listed on Annex I of the Birds Directive, do not have this protection.

Maintenance of permanent grassland

The cross-compliance rule requiring the maintenance of permanent grassland for 2007-13 (now a green measure under Pillar 1) obliged Member States to take action to protect grassland if the ratio of permanent grassland to the total agricultural area fell more than 10% below the reference level (the threshold is 5% in 2014-2020)[497]. However, it is possible to plough, fertilise and re-seed grassland provided the land is not sown to arable crops, and any type of grassland can, in theory, be converted to arable if it is replaced by new grassland elsewhere (as long as the threshold is not breached)[498]. As a result, farm level authorisation procedures need to be put in place, as they have in some countries, to protect EU grassland habitats. Otherwise the rule may be of limited direct benefit for this purpose. Such grasslands are destroyed or seriously damaged if ploughed, and there is evidence that this has happened in some places, as shown by loss of Annex I grassland habitats in Germany (Nitsch et al, 2012) and Slovenia (see section 7.1 for details of grassland losses).

For the 2014-2020 period, the protection of permanent grassland forms one of the three greening measures under Pillar 1 (see below).

Greening requirements 2014-2020 including designation of environmentally sensitive grassland

Elements of EFAs have the potential to be beneficial to biodiversity through increasing the area of habitats such as fallow, nectar- and pollen-rich and/or seed rich vegetation, woody elements with biodiverse ground vegetation, other species-rich grassland vegetation (agro-forestry, hedges, afforestation, buffer strips etc.), and wetland areas (ponds, ditches, retention sinks, etc.) (Dicks et al, 2013). However, the NGO respondents and some of the nature conservation authority respondents generally have low expectations of benefits to biodiversity from greening, citing studies that predict limited benefits for biodiversity overall from the legislative requirements (Pe'er et al, 2014) and for farmland birds (Chiron et al, 2013).

A recent review of greening implementation (Hart, 2015) finds that in the majority of cases the evidence suggests that Member States have used the flexibility available to them in the regulations to maximise opportunities for arable farmers to meet their obligations with regard to crop diversification and EFAs without having to make significant changes that would benefit biodiversity. For example, using species that are not necessarily beneficial to biodiversity, permitting the use of fertilisers and pesticides and, in France, permitting the continuation of maize monoculture. While there are variations, some national sources indicate that farmers are predominantly choosing those EFA op-

[496] Raptor Persecution Scotland. 2015/11/15. Web article: 'Stody estate receives £221,000 subsidy penalty for mass raptor poisoning'. https://raptorpersecutionscotland.wordpress.com/2015/11/15/stody-estate-receives-221000-subsidy-penalty-for-mass-raptor-poisoning/

[497] For the 2014-2020 period, Member States can choose to apply this requirement regionally or nationally, although authorisation procedures can be set at the level of individual farms. The reference ratio is defined by the 2015 baseline. This rule has been kept under cross-compliance temporarily to ensure a smooth transition to the new permanent grassland greening measure under Pillar 1.

[498] See definition of permanent grassland according to Article 4.1(h) of Regulation (EU) No 1307/2013 of 17 December 2013 for allowed management actions.

tions with lowest expected biodiversity benefits (catch crops and nitrogen-fixing crops) (Doorn et al, 2015)[499].

A new element that has the potential to support the Nature Directives' objectives obliges Member States to designate those grasslands within Natura 2000 sites that are 'environmentally sensitive' and which need strict protection in order to *inter alia* protect species, HNV land, water quality, and to protect against soil erosion, including peatland and wetland[500]. Member States can also designate grasslands outside Natura 2000. If farmers convert or plough these designated grasslands they lose part of the 'greening' element of their direct payment[501]. In 2015, 10 Member States designated all the grassland in their Natura 2000, five Member States designated between 50% and 100%, and 11 Member States designated less than half of the grassland within their Natura 2000 areas[502][503]. The Bulgarian NGO pointed out that the Bulgarian permanent grassland layer in the LPIS does not include the actual scope of grasslands in the framework of Natura 2000, and therefore cannot provide complete protection, a situation which also applies to other Member States where grassland is not sufficiently accurately mapped. For 2014, just four Member States designated grassland areas outside Natura 2000 (Czech Republic, Latvia, Luxembourg, and the UK Wales only)[504].

Conclusions

The 2014-2020 CAP includes more potentially beneficial elements for Natura 2000 sites and EU protected habitats and species in the wider environment, particularly from RDP measures. The new EAFRD rules/conditions, supported by proper checks and controls (e.g. EIAs) in Member States, have been designed to avoid the kinds of detrimental impacts that have occurred in the past (e.g. afforestation of sensitive habitats, irrigation). These changes have, in principle, improved integration of and coherence with the objectives of the Nature Directives. However, it is too early to assess the actual effects on EU protected habitats and species and the Natura 2000 network, which remain greatly influenced by Member State implementation choices.

Although agricultural EU protected species and habitats continue to decline, the evidence given here, along with other studies (evidence with respect to agri-environment schemes reviewed in Batáry et al, 2015; Le Roux et al, 2009; Poláková et al, 2011) indicate that without any support via the CAP, the conservation status of agricultural habitats and species would be worse than it currently is. However, the CAP could contribute more to the goals of the Nature Directives, especially if Pillar 2 funding were increased, particularly for agri-environment climate and forest environment measures, and Member States targeted these measures more towards biodiversity objectives related to the Birds and Habitats Directives.

8.4.3.1.4 Key findings

- The overarching objectives of the CAP are to support viable food production, the sustainable management of natural resources and climate action, and to achieve balanced territorial development. Environmental objectives have been increasingly incorporated into the CAP, specifically in the current period with the greening measures in Pillar 1 and in Pillar 2 the Union priority on restoring, preserving and enhancing

[499] Birdlife in the Netherlands 'Advies van zes groene organisaties over de invulling van de vergroening van het GLB in Nederland'. http://www.vogelbescherming.nl/index.cfm?act=files.download&ui=F5484D54-0B36-6FF0-D4BD6156E83E01FA
[500] Article 45(1) of Regulation (EU) No 1307/2013 of 17 December 2013 and Article 41 of Regulation (EU) 639/2014.
[501] The reduction in payment is determined by a number of factors that differ between Member States. Commission Delegated Regulation (EU) No 640/2014.
[502] New areas can be designated each year.
[503] In Hungary, ploughing of grassland in Natura 2000 sites is forbidden by Ministerial Decree.
[504] European Commission. 02/10/2015. The mid-term review of the EU Biodiversity Strategy to 2020. Report from the Commission to the European Parliament and the Council, European Commission, COM/2015/0478 final, 02/10/2015.

ecosystems related to agriculture and forestry. Therefore the CAP and Nature Directives are potentially complementary.

- The reformed CAP includes more potentially beneficial elements for biodiversity. In principle, all rural development measures can be targeted to biodiversity benefits. However, it is too early to assess its impacts on EU protected habitats and species, which are greatly influenced by Member State implementation choices.
- The Habitats Directive contains a number of semi-natural habitats which depend on the continuation of extensive agricultural systems. Historically, support payments under Pillar 1 of the CAP were mainly coupled to production, providing an incentive to increase agricultural production, leading, in some cases, to well-documented detrimental biodiversity impacts (e.g. through losses of semi-natural habitats and overgrazing). The great majority, but not all, of direct payments are now area-based. Some voluntary coupled payments remain, and have the potential both to maintain grazing where it is required for EU protected habitats, and to incentivise higher than desirable stocking densities unless adequate monitoring and safeguards are in place. NGO respondents consider that decoupled direct payments can indirectly encourage agricultural improvements and intensification with detrimental impacts on biodiversity. However, there appears to be no evidence of whether or not this is occurring.
- Pillar 1 direct payments (and additional payments for areas facing natural and other specific constraints under Pillar 2), can play a role in supporting the continuation of farming systems and practices associated with certain protected habitats and species, such as extensive grazing. For the period 2007-2013, Pillar 1 eligibility rules (e.g. concerning scrub and trees), as interpreted in some Member States, excluded large areas of farmland with semi-natural habitats and/or EU protected species from receiving direct payment support. In some cases, this is stated to have had detrimental effects on semi-natural habitats through land abandonment or degradation/destruction. The recent reform of the CAP gives Member States more flexibility to determine the eligibility of land for direct payments, but it is too early to assess if this has fully solved the problem.
- Cross compliance measures aim to ensure a basic level of environmental protection (inter alia) on farmland. They include SMRs that refer to provisions within the Birds and Habitats Directives, and standards for GAEC contributing to biodiversity. Although cross-compliance has improved awareness among farmers of environmental concerns, there is little documented evidence of beneficial biodiversity impacts, apart from an indication that GAEC 7 has helped to protect landscape features.
- From 2015, the green payments (which comprise 30% of direct payments) provide increased opportunities for Member States to provide biodiversity benefits, e.g. through some of the options for EFAs. The designation of environmentally sensitive permanent grasslands could be beneficial, with some Member States electing to designate all grassland in their Natura 2000 sites and some others designating outside sites also. The impacts of the greening measures will depend considerably on Member State implementation choices and the options put into practice by farms. It is as yet too early to assess this.
- Within Pillar 2 at least 30% of EAFRD must be dedicated to environment and climate change objectives. The agri-environment-climate measure (supported by non-productive investments) is the primary measure through which incentives are provided for farmers to continue or adopt management practices that are beneficial to biodiversity, both in Natura 2000 sites and elsewhere. Many schemes have contributed to improvements in the status of EU protected habitats and species, although some have suffered from poor design and targeting. Greater application and better tailoring to biodiversity priorities is required to increase the scale of their impacts. The Natura 2000 measure provides Member States with the opportunity to compensate for restrictions on farming and forestry activities in Natura 2000 sites. However, it is not widely used, due in part to the slow progress with establishment of site-specific conservation measures (e.g. development of site management plans). Other measures can provide additional support if Member States choose to do so, e.g. rural heritage under the basic services and village renewal measure.
- Compared to the agri-environment climate and forest-environment schemes, Pillar 2 funding under the ANC measure does not specify nature conservation management

requirements and therefore does not provide incentives for EU protected habitats and species. However, it will benefit farms in many Natura 2000 areas and may prevent abandonment of semi-natural grassland management.

- Some RDP measures have in the past been reported as having detrimental biodiversity impacts (e.g. afforestation of sensitive habitats, expansion of irrigation in dryland habitats). The new EAFRD rules/conditions have been designed to avoid such impacts, supported by proper checks and controls (e.g. through EIAs) in Member States, but it is too early to assess if these are going to be more effective.
- A substantial body of evidence suggests that without any support via the CAP, the conservation status of agricultural habitats and species would be worse than it currently is, because of the poor profitability of the most extensive farming systems. However, the CAP could contribute more to the goals of the Nature Directives, especially if Pillar 2 funding was increased for agri-environment climate and forest environment measures, and better tailored and targeted by Member States towards biodiversity objectives related to the Birds and Habitats Directives.

8.4.3.2 Cohesion Policy

8.4.3.2.1 Introduction and sources of information

This section considers the coherence of EU Cohesion Policy with the Nature Directives. Cohesion Policy provides co-financing from the EU budget to support social and economic cohesion across the EU, with significant amounts of funding disbursed in the less developed parts of the Union. Co-financing is allocated according to strategic plans and spending programmes developed and implemented by the Member States and regions, and outcomes are highly dependent upon the priorities and practices of the individual Member States. Both positive and negative interactions with the Nature Directives have been observed over the years. On the one hand, Cohesion Policy provides a significant opportunity for Member States to secure the public funding needed to achieve Favourable Conservation Status, and securing funding is one of the key operational objectives of the Habitats Directive. At the same time, Cohesion Policy supports objectives and actions, in particular infrastructure investments, that threaten the objectives of the Directives and require Member States to be particularly vigilant when ensuring that the Appropriate Assessment (AA) of plans or projects do not cause deterioration of habitats or disturbance to species, as required by the Habitats Directive.

The sources of information for this analysis are mainly documentary, as few stakeholders directly addressed coherence with Cohesion Policy in their responses to questions C.4 and C.5. A total of 10 responses were received (several replied jointly to both questions), mainly from Member State level NGOs, providing general opinions about the mix of positive and negative interactions between Cohesion Policy and the Nature Directives. The main sources of information used, therefore, include the text of the Cohesion Policy regulations, studies and Guidance documents dedicated to the integration of the environment and nature into Cohesion Policy, and research documents and statements prepared by NGOs on the impacts of the EU budget and Cohesion Policy projects on the environment and nature.

8.4.3.2.2 Objectives and interactions

The main objective of Cohesion Policy has been to reduce significant economic, social and territorial disparities between European regions through the provision of co-financing from the EU budget to support investments in key areas. With the adoption of the Europe 2020 Strategy in 2010, the Cohesion Policy and its structural funds became the 'key delivery mechanisms to achieve the priorities of smart, sustainable and inclusive growth in Member States and regions'[505]. In line with this, the investment priorities of Cohesion

[505] European Commission, 2010, A strategy for smart, sustainable and inclusive growth, Communication from the Commission, COM(2010) 2020 final, 3.3.2010, p.20.

Policy are related to: research and innovation, ICT, SMEs, low-carbon economy, environmental protection, and promoting sustainable transport and removing bottlenecks in key infrastructure[506].

Ultimately, the principle that economic growth should be achieved in a sustainable manner, and the Treaty on the Functioning of the European Union (TFEU) requirement to integrate environmental protection requirements into the implementation of Community policies, would seem to suggest a need for coherence with nature protection objectives[507]. In particular, the thematic objective that addresses environment and nature directly is thematic objective 6 which is named 'Protecting the environment and promoting resource efficiency'. However, possibilities for investments in nature-based solutions and green infrastructure are possible under other thematic objectives, e.g. on research and innovation, on SMEs, on low-carbon economy, and on climate change adaptation and risk prevention. For example the EU's targets under the sustainable growth objective address climate change mitigation which impacts biodiversity or nature protection[508]. In addition, the Europe 2020 Strategy includes a long-term vision for incorporating sustainable resource use into socio-economic development and includes the EU Biodiversity Strategy as a medium-term measure[509].

The total funding for Cohesion Policy in 2014-2020 amounts to EUR 351.8bn, about one-third of the total EU budget for this period. Similar amounts were available in previous seven-year funding periods. With co-financing by Member States, this amounts to around EUR 700bn over the seven-year period[510]. It is therefore a significant driver of public investment across the EU, with greater emphasis in the less-developed Member States and regions, mainly in the South, the East and peripheral areas.

Under the EU co-funding arrangements, financial support to implement biodiversity conservation objectives (e.g. Natura 2000 network) has been integrated into different EU sectoral funds (Kettunen et al, 2014a). Cohesion Policy provides an important opportunity for funding to support, both directly and indirectly, nature conservation objectives, through dedicated measures for Natura 2000 management, investment and monitoring, Green infrastructure projects, research, capacity building, training and many other measures. There is considerable potential for positive synergy between these measures and the fulfilment of the biodiversity conservation objectives of the Nature Directives. (see section 8.6 for a discussion of the integration of Natura 2000 into the main EU sectoral funds, and section 6.2 for more on availability and access to funding overall.)

At the same time, Cohesion Policy supports many types of measures that have the potential to impede nature objectives. These relate mostly to infrastructure investments, including transport, energy and even environmental and flood infrastructure (see below). These investments are driven by specific sectoral policy objectives, as discussed in other sections of this question (e.g. energy, transport). Nevertheless, awareness and recognition of the importance of the environmental impacts of Cohesion Policy has grown in recent decades. This can be observed both in the content of the relevant legislation and Guidance documents, and was noted in one of the responses to the stakeholder consultation for this evaluation[511].

The first overarching 'Cohesion Policy' Regulations adopted in 1988 did not contain any environmental conditions for funding (Coffey and Richartz, 2003)[512]. Since then, EU environmental legislation has developed considerably, not only in the field of nature protec-

[506] http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm, accessed 7.12.15.
[507] Consolidated Version of the Treaty on the Functioning of the European Union Article 11, 2008 O.J. C 115/47.
[508] The targets cover reduction in GHG emissions, increasing the share of renewables in energy consumption and increasing energy efficiency, http://ec.europa.eu/europe2020/pdf/targets_en.pdf, accessed 7.12.15
[509] European Commission, 2011, A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, , COM (2011) 21 final, 26.1.2011.
[510] https://cohesiondata.ec.europa.eu/, accessed 7.12.15
[511] Information supplied by the World Wide Fund for Nature (WWF) in the evidence gathering questionnaire.
[512] Cohesion Policy as we know it today appeared in 1988 when the Structural Funds were integrated into an overall Cohesion Policy, focusing on the poorest regions and using a strategic, multi-annual programming process. The first programming period was from 1988-1992; subsequent periods followed the EU seven-year budget cycles.

tion but also water, air, waste and other areas, in line with Article 130r(2(3)) of the Maastricht Treaty and Article 11 of the TFEU[513][514]. Consequently, the regulations adopted for Cohesion Policy since the 1994-1999 funding period have made explicit reference to the requirement that all spending comply with environmental legislation. This includes proper implementation of the SEA, EIA and Habitats Directive requirements on the environmental assessment of plans, programmes and projects that will impact the environment and/or Natura 2000 sites.

Since 2000 the requirement to comply with environmental legislation has expanded to a more systematic and comprehensive framework for integrating environmental considerations into all aspects of programme development and implementation (IEEP et al. 2011). The 2000-2006 regulations set out environmental sustainability as a 'horizontal theme' and actively encouraged environmental authorities and stakeholders to participate in programme design and implementation. This has been maintained in the regulations for 2007-2013 (Article 17) and 2014 – 2020. For the latter, biodiversity is specifically mentioned in Article 8: 'the Member States and the Commission shall ensure that environmental protection requirements, resource efficiency, climate change mitigation and adaptation, biodiversity, disaster resilience, and risk prevention and management are promoted in the preparation and implementation of Partnership Agreements and programmes'[515]. This is reinforced by the Commission when it reviews and approves the strategic planning and programming documents.

The legal and policy frameworks for Cohesion Policy and the Nature Directives are coherent as written. The higher-level objectives of Cohesion Policy do not specifically reference nature protection or biodiversity, but sustainable growth driven by resource efficiency and the EU Biodiversity Strategy is part of the relevant strategic policy documents. Cohesion Policy regulations and implementation guidance have more explicitly recognised the importance of integration of environment and nature protection concerns over time, as well as the legal requirement to do so. Sustainable development - including biodiversity - is to be integrated into all spending plans and programmes, which must comply with relevant environmental legislation. Nevertheless, the actual impact of Cohesion Policy on nature and biodiversity depends upon the ways in which plans, programmes and projects are designed and implemented in the Member States, and the results over time have been mixed.

8.4.3.2.3 Impacts on implementation of the Nature Directives

Cohesion Policy has strong potential to build positive synergies with nature protection through the provision of funding for Natura 2000 site management planning and conservation measures, as well as capacity building, research and a range of other measures. (see sections 6.2 and 8.6 for further discussion.)

Based on stakeholder responses to the evidence gathering questionnaire and the literature reviewed for this question, it is clear that a considerable proportion of Cohesion Policy funding also has the potential to adversely impact nature and biodiversity (WWF, 2006a), (RSPB and EEB, 2013), (EEA, 2009)[516]. These negative impacts relate to infrastructure within the energy, transport, environment and building sectors and include in-

[513] Article 130r(2(3)) of the TFEU signed in Maastricht on 7 February 1992, 29.07.1992 OJ C 191/1 states, among other things, that the Community policy on the environment follows the objectives of preserving, protecting and improving the quality of the environment.
[514] Consolidated Version of the Treaty on the Functioning of the European Union Art. 11, 2008 O.J. C 115/47. 'Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development.'
[515] Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006.
[516] See also examples in sections related to energy and transport.

vestments in roads, railways, ports and airports, inland water navigation, flood defences, water treatment plants and drains, power stations, hydropower, overhead electricity transmission and underground energy transmission infrastructure. Major impacts of such infrastructure development on nature include: direct mortality, such as bird and bat collisions with infrastructure; habitat fragmentation, such as barriers to movement for species; ecosystem disruption; pollution and more (Bio by Deloitte et al, 2014).

EU environmental legislation provides a coherent framework of safeguards which, when effectively implemented, allows for the early and effective assessment of impacts of plans, programmes and projects on the environment and nature. The Habitats Directive was specifically designed to ensure appropriate assessment of plans or projects likely to affect Natura 2000 sites, in recognition of the fact that nature protection should happen in harmony with socio-economic goals and requirements. Nevertheless, proper implementation of these procedures remains challenging and, in some cases, fails to meet original expectations of the legislation (Sundseth and Roth, 2013). In its response to the evidence gathering questionnaire, the EU level NGO WWF refers to improvements in planning and cross-compliance between EU sectoral policies (both generally and including Cohesion Policy) and the Nature Directives, stemming, in part, from the work of NGOs to expose conflicts and contradictions at policy level.

The procedures for review and approval of major projects (those for which the total eligible cost exceeds EUR 50m or EUR 75m in the transport sector) by the Commission has an important impact on the quality of those large investment projects, including their impacts on environment and nature. The application form for major projects requires applicants to provide a summary of actions taken in relation to the application of horizontal principles, including sustainable development with reference to biodiversity[517]. In section F it requires an overview of the analysis of environmental impact, including: the consistency of the project with environmental policy (including the preservation of biodiversity and ecosystem services and respect of the precautionary principle); the application of, and compliance with, environmental directives including the Habitats Directive; and the cost of mitigation measures resulting from environmental assessment procedures. A declaration by the authority responsible for monitoring Natura 2000 sites is also required. Direct review and approval of applications for major projects by the Commission adds another layer of quality and compliance control to these projects, beyond that of the Member State authorities.

The Commission has taken additional measures to improve the overall quality of Cohesion Policy funded programmes and projects, as well as to ensure better compliance with EU legislation. The JASPERS initiative has been set up jointly by the Commission, the EIB and the EBRD to provide project preparation support for major projects in the new EU Member States. A range of assistance is provided, including independent quality review of projects, capacity building and horizontal assignments addressing specific themes. Through its networking platform, JASPERS carries out seminars on specific issues and topics relevant to project preparation and implementation, most recently on nature protection and the requirements of the Nature Directives[518].

In 2014 the Commission published a 'Common Framework for Biodiversity-Proofing of the EU Budget' including a dedicated Guidance document for Cohesion Policy Funds. It suggests tools at various levels of the policy implementation cycle, such as:

[517] Commission Implementing Regulation (EU) No 2015/207 of 20 January 2015 laying down detailed rules implementing Regulation (EU) No 1303/2013 of the European Parliament and of the Council as regards the models for the progress report, submission of the information on a major project, the joint action plan, the implementation reports for the Investment for growth and jobs goal, the management declaration, the audit strategy, the audit opinion and the annual control report and the methodology for carrying out the cost-benefit analysis and pursuant to Regulation (EU) No 1299/2013 of the European Parliament and of the Council as regards the model for the implementation reports for the European territorial cooperation goal.

[518] Jaspers Network, Knowledge and Learning Centre, Seminar on Nature Protection and Birds and Habitats Directives requirements, http://www.jaspersnetwork.org/display/EVE/Seminar+on+Nature+Protection+and+Birds+and+Habitats+Directives+requirements, accessed 7.12.15.

- The integration of dedicated biodiversity objectives and selection criteria into project calls across all relevant sectors.
- The development of biodiversity indicators for all relevant types of projects.
- Guidance for the preparation of projects in all relevant sectors that assist in identifying nature and biodiversity impacts or opportunities for enhancement.
- The use of checklists by programme management authorities to highlight key considerations in biodiversity proofing across the programme implementation cycle.

These tools are based on good practices in place in various Member States and regions, and are intended to enhance planning and management processes, as well as working in synergy with environmental legal requirements.

The Commission also published 'The Guide to Multi-benefit Cohesion Policy Investments in Nature and Biodiversity' in 2014 (IEEP and Milieu, 2013), which looks at opportunities for positive synergies between biodiversity and nature and economic development investments funded by Cohesion Policy, including Green infrastructure solutions.

Results from the public consultation

There are mixed views in the responses to the online public consultation on whether or not Cohesion Policy generally supports the objectives of the Nature Directives. The question as written is challenging to interpret, mainly because there is concrete evidence of ways in which Cohesion Policy supports the Directives (e.g. through funding of conservation measures) and threatens them through infrastructure projects, and respondents were not given the opportunity to distinguish between these two distinct aspects of the policy. However, few respondents felt that Cohesion Policy did not generally support the nature objectives, although - with the exception of business - many felt it could do more.

Table 37 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for Cohesion Policy

Individual	No	4%
	Yes	1%
	Could do more	94%
	I don't know	1%
Business	No	8%
	Yes	59%
	Could do more	20%
	I don't know	13%
Government	No	10%
	Yes	21%
	Could do more	46%
	I don't know	23%
NGOs	No	10%
	Yes	14%
	Could do more	63%
	I don't know	13%

8.4.3.2.4 Key findings

In summary, the evidence regarding the coherence of Cohesion Policy with the Nature Directives does not point to a single conclusion. Some, such as the policy documents and guidelines, suggests coherence, with sustainability, environmental protection and nature conservation clearly integrated into the policy, however, the potential for inconsistency remains if certain types of projects are not carried out properly. Other evidence, in par-

ticular from environmental NGOs, suggests that such inconsistencies do occur in practice, but that there are legal instruments and other tools (e.g. guidance materials and technical assistance programmes) available to mitigate these impacts. The following are the key findings from the review and analysis of evidence for this question:

- The main objective of Cohesion Policy has traditionally been to reduce significant economic, social and territorial disparities between European regions through co-financing investments targeting socio-economic development. With the adoption of the Europe 2020 Strategy in 2010, Cohesion Policy and its structural funds became the 'key delivery mechanisms to achieve the priorities of smart, sustainable and inclusive growth in Member States and regions'. These high-level objectives of Cohesion Policy do not address nature and biodiversity directly. However, the requirement to integrate environmental protection considerations into the implementation of Community policies enshrined in the Treaty on the Functioning of the European Union (TFEU) suggests a need for coherence with nature protection objectives.
- Cohesion Policy has evolved during the last three decades to provide more support for environmental policy, including biodiversity and nature-related issues, as confirmed both in literature and by stakeholders.
- Cohesion Policy provides relatively large amounts of funding (EUR 347.4bn for 2007-2013 and EUR 351.8bn or around 33% of the EU budget for 2014-2020) to co-finance investments in research, SME competitiveness, transport, low-carbon economy, labour and social inclusion, education and also environment and resource efficiency. Funding is available to directly and indirectly support the objectives of the Nature Directives (e.g. for conservation measures or management of Natura 2000 sites), as well as for activities that may directly threaten nature objectives, such as transport, energy and other infrastructure.
- Cohesion Policy objectives are very broad, some more coherent with those of the Nature Directives (e.g. sustainable growth) than others (e.g. the focus on economic growth and job creation, which has the potential to promote interventions that threaten nature conservation objectives). Ultimately, the concept that economic growth should be achieved in a sustainable manner seems to suggest broad coherence with the Nature Directives. Evidence shows that this is not always the case, however, with both stakeholders and literature supporting the idea that Cohesion Policy in practice has both positive and negative impacts on the objectives and implementation of the Nature Directives.
- At the implementation level, several instruments and procedures exist to assess, identify and mitigate the possible negative impacts on environment and nature from the programmes and projects supported by Cohesion Policy. These include EU legislation on environmental assessments – including SEA, EIA and AA as discussed in section 8.2. The process by which the Commission reviews the quality of Member States' strategic plans and spending programmes (including SEAs), approves large investment projects (> 50m or 75m in the transport sector) and provides technical assistance for preparation of large infrastructure projects (including EIA and AA), places some additional emphasis on the quality of environmental assessment procedures for Cohesion Policy plans, programmes and projects. Guidance documents based on good practice from around the EU also exist.

8.4.3.3 Energy

8.4.3.3.1 Introduction and sources of information

Energy policy in the EU focuses on the availability of affordable energy across the EU, as well as sustainable energy production and use in line with the EU's climate change targets. There are important interactions with nature and biodiversity, particularly with re-

gard to the infrastructure development and the cultivation of agricultural crops for fuel production.

The evidence base includes legal and policy documents and studies and reports, as well as responses to the evidence gathering questionnaire. While the energy sector was addressed by a relatively limited number of stakeholders (16 responses for C.4 and 15 for C.5), the replies came from a diverse set of stakeholders and provided a sufficient range of perspectives and examples to enable analysis. Where stakeholders, particularly those from the private sector, provided information relevant for coherence with the energy sector within the answers to other questions, this has been incorporated into the analysis.

8.4.3.3.2 Objectives and interactions

The EU's Energy Union strategy consists of five closely related and mutually reinforcing dimensions[519]:

- Supply security – diversifying sources of energy and making more efficient use of them.
- A fully integrated internal energy market – removing technical and regulatory barriers so that energy can flow freely across the EU and that customers get the most competitive prices.
- Energy efficiency – consuming less energy in order to reduce pollution and use energy sources sustainably.
- Decarbonisation of the economy – reducing EU emissions, promoting better international climate protection policy and investment in new, low emission technologies.
- Research and innovation – supporting low carbon technologies by coordinating research and financing projects in partnership with the private sector.

The objectives of the EU Climate and Energy Package as adopted in 2008 (20% reduction of GHG emissions, 20% improvement of energy efficiency, and reaching 20% share of renewables in final energy consumption by 2020) can be expected to contribute to positive environmental effects through creating synergies with biodiversity protection. The energy efficiency objective, in particular, may contribute to positive impacts on nature and biodiversity, through reductions in demand for the production and distribution of energy. The renewable energy objective shifts part of the demand from conventional energy sources to renewable sources: here, the effect on biodiversity depends on the type of renewable source and how key issues such as locational sensitivity are addressed in project design and implementation. Finally, the GHG reduction objective is expected to bring indirect biodiversity effects, depending on geographical location.

Based on the literature review and the views of the stakeholders, the energy policy areas that raise the greatest concern with respect to the risks posed to nature and biodiversity as well as interaction with the Nature Directives, are the Trans-European Networks for energy, renewable energy policy, particularly the use of biofuels and the development of wind farms, and the extraction of unconventional hydrocarbons such as shale gas. These topics will be addressed in the subsequent sections. While the extraction of coal continues to pose a threat to biodiversity, its declining significance in the EU (with a current share of 25% of energy sources and further decreases projected), although still a topic of concern, has made it less of a pressing issue[520].Indeed, EU energy and climate legislation and policy is a key driver discouraging the use of coal, creating synergy with the protection of biodiversity against the negative impacts of coal mining, such as habitat destruction and fragmentation.

[519] European Commission, 2015. State of the Energy Union. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, COM(2015) 572 final, 18.11.2015.
[520] CAN Europe, coal map, http://www.coalmap.eu/#/

8.4.3.3.3 Impacts on implementation of the Nature Directives

The Trans-European Networks for Energy

The Trans-European Networks for Energy (TEN-E) policy supports the planning, design and construction of the energy infrastructure needed for the EU to integrate its energy market, ensure security of energy supply and meet its climate and energy goals. The 2006 TEN-E Guidelines Decision, which governed the 2007-2013 EU budget cycle, listed and ranked projects eligible for Community financial assistance, and introduced the concept of a 'project of European interest'[521].These are priority projects of a cross-border nature, which have a significant impact on cross-border transmission capacity. The 2013 TEN-E Guidelines Regulation takes the concept further, establishing 'projects of common interest' (PCIs) as the projects necessary to implement EU energy infrastructure priorities in the electricity, natural gas, oil and carbon dioxide transport sectors[522]. A list of PCIs is adopted every two years, with the most recent list adopted in November 2015, containing 195 key energy infrastructure projects to deliver Europe's energy and climate objectives and form key building blocks of the EU's Energy Union. Between 2014 and 2020, financial support from the Connecting Europe Facility (CEF) of EUR 5.35bn will be available for these PCIs[523].

Most PCIs will be energy network projects requiring the construction of pipelines and grids likely to have some impact on biodiversity and habitats and which may, in some instances, represent a risk to Natura 2000 sites through habitat loss or degradation, fragmentation, disturbance to fauna and flora or pollution. Power lines can pose a particular risk for birds and bats. The stepping-up of energy infrastructure development to meet EU energy policy goals that include integration of renewable energy production could intensify the impact on nature.

The framework in place to mitigate impacts on environment and nature via spatial planning and environmental assessment also applies to energy infrastructure projects. However, PCIs under the TEN-E Regulation for 2014-2020 are entitled to streamlined permitting procedures that are specified in the TEN-E Regulation (Articles 7 - 9). Among the requirements for these procedures are that PCIs be given the highest national significance available and the most rapid treatment legally possible in each Member State. The Regulation also specifically states in Article 7(8) that PCIs shall be considered as being of public interest from an energy policy perspective and may be considered as being of overriding public interest with regard to the environmental impacts addressed in Article 6(4) of the Habitats Directive – provided that all of the conditions set out in the Directive are fulfilled.

There is also a provision regarding 'streamlining' of environmental assessments, while ensuring their coherent application (Article 7(4)). Member States are required to take 'legislative and non-legislative' measures to ensure this. The Commission has issued a Guidance document to support Member States in the identification and application of measures for streamlining environmental assessment procedures stemming from a range of EU legislation - including the Habitats Directive - for energy infrastructure projects (European Commission, 2013b). This Guidance document promotes good practice in carrying out environmental assessment procedures efficiently, emphasising their value in detecting and resolving any possible conflicts in project development as early as possible. It details requirements under Articles 6(3) and 6(4) of the Habitats Directive, including proof of compensation measures in cases of overriding public interest. The document promotes early integration of environmental issues into procedures, recommending that

[521] Decision No 1364/2006/EC of the European Parliament and of the Council laying down Guidelines for Trans-European Energy networks and repealing Decision 96/391/EC and Decision No 1229/2003/EC.
[522] Regulation EU No 347/2013 of 17 April 2013 on Guidelines for Trans-European Energy Infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009.
[523] https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest, accessed 20.11.15

SEAs and, where applicable, Appropriate Assessments (AAs), are made mandatory at the planning stage for national energy policies and plans. It also emphasises the importance of public consultation and participation in ensuring smooth permitting procedures for energy infrastructure projects. Dedicated guidance on electricity, gas and oil transmission infrastructure and Natura 2000 is forthcoming from the Commission.

Despite the existing guidance, concern has been expressed that some PCIs may exert negative impacts on nature and biodiversity, including in Natura 2000 areas (RSPB and EEB, 2013). According to information provided by the Renewables Grid Initiative (RGI - a network of NGOs and energy Transmission System Operators (TSOs) in the EU) in the evidence gathering questionnaire, energy policy could do more to support implementation of the Nature Directives through more detailed strategic planning for renewables and for grid development. Mapping specific ecological sensitivities would help to give developers clearer signals about the locations where additional work might be needed due to the requirements of the Directives, as well as possible mitigation measures. Strategic planning is also an opportunity for public engagement, bringing additional knowledge and support for infrastructure projects. The positive examples from RGI in the Box 99 below illustrate how this can be done in practice.

In 2011 a declaration was signed by 24 environmental NGOs and the biggest transmission system operators (TSOs) in Europe, stating that there does not have to be conflict between energy and biodiversity goals, with both parties pledging to work together[524][525].

Box 99 Positive examples from RGI

Continuous cooperation with the World Wide Fund for Nature (WWF) Italy
In 2009, WWF Italy and the Italian TSO Terna signed a three-year cooperation agreement focusing on more sustainable development of the Italian grid. A working group was established to ensure continuous dialogue on issues such as integration of environmental criteria in the Electricity Grid's Development Plan and the action plan to mitigate impacts in priority areas (national parks). Terna regularly sends updates on a shared list of grid expansion projects to the national offices of WWF Italy. This office then forwards the information to their local member organisations. Resulting questions from WWF local bodies or requests to talk to Terna are addressed and organised via the national offices.

Interdepartmental guidance group in Flanders
During the development of the scoping document for the SEA, the Belgian TSO Elia, together with the Flemish administration, established an interdepartmental guidance group. Throughout the whole planning and permitting process, the group met regularly, both as a group and on a one-on-one basis. Important process steps such as the scoping document, public consultation, or the surveys during the SEA process, as well as their relevant implication on Elia's actions, were discussed. With this, Elia incorporated the views of the Flemish administration on route alternatives in the analysis before presenting the document to the public. For the consultation of the SEA scoping document, it was decided to hold information meetings, with citizens invited by direct mailings. Meetings were divided into two parts: firstly, people could have a direct one-on-one dialogue with employees to talk about specific issues, then, the second part comprised a plenary session where the plans were presented and open questions could be asked.

Source: (RGI, 2013).

Bioenergy

Binding targets on the share of renewable energy in consumption and in the transport sector are important drivers of energy policy choices within Member States, and these have the potential to impact nature and biodiversity. Article 3 of the Renewable Energy Directive (RED) of 2009 sets a 20% target (energy content) for overall EU energy consumption from renewable sources and a 10% target for renewable energy in transport in 2020[526]. One way in which Member States can meet these targets is through increased

[524] http://renewables-grid.eu/about.html, accessed 20.11.15
[525] http://renewables-grid.eu/documents/eu-grid-declaration.html, accessed 25.11.2015
[526] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of

reliance on the use of bioenergy, mainly in the heating and transport sectors (Bowyer and Kretschmer, 2011).

While the use of bioenergy may reduce impacts on biodiversity from conventional energy sources, the production of biofuels and biomass may have negative effects on nature, mainly through land use intensification and indirect land use changes. The RED set the provision that biofuels used in transport cannot be made from raw materials obtained from land of high biodiversity value – primarily natural forests, protected areas, highly biodiverse grasslands, wetlands and peatlands. In addition, national support schemes for production of biofuels and bioliquids can be granted only under the condition that such production does not interfere with the nature protection objectives of the land where the biofuels are grown. The Fuel Quality Directive (FQD) as amended in 2009 contains the same sustainability criteria for biofuels as the RED[527].

The provisions in the RED and the FQD have not been sufficient to address the indirect land use change brought about by the cultivation of crops for biofuels. For example, negative impacts on biodiversity may arise from forest management measures to increase site productivity. Intense harvest regimes can lead to nutrient losses and soil compacting, which can cause adverse effects on forest growth and biodiversity (Aivelo, 2010). As noted in (Birdlife International, 2011), the main classes of biomass currently used in energy production are forestry products, dedicated energy crops, agricultural residues, waste streams and by-products/co-products from other production processes. According to several stakeholders and the literature (BirdLife International et al, 2011) current biomass policies are not aligned with sustainable agriculture and forest management objectives[528]. Kampmanet al. (Kampman et al, 2012) show how EU transport energy policy could reduce its reliance on biofuels from food crops that are likely to cause negative impacts on nature and biodiversity. This could be achieved by using a mix of measures aimed at improving energy efficiency, combined with a strong focus on growth of renewable electricity use and biofuels from waste and residues.

The RED and FQD set sustainability criteria only for those biofuels produced from biomass used in the transport sector, and do not apply to biomass use for heating and electricity. This is seen as a major gap by several stakeholders, including the EEB, BirdLife Europe and Slovakian NGOs. In February 2010, the Commission adopted a report on requirements for a sustainability scheme for solid and gaseous biomass used for generating electricity, heating and cooling[529]. In 2014, the Commission published a report on the sustainability of solid and gaseous biomass for heat and electricity generation[530]. The report describes current and planned EU actions to maximise the benefits of using biomass while avoiding negative impacts on the environment. So far, however, no binding criteria have been established at European level.

In 2012, the European Commission proposed a Directive amending the RED and FQD to address the issue of indirect land use change (ILUC Directive). According to the requirements of this Directive, the Member States will establish target limits on production of certain types of biofuels with the objective of restricting production of so-called first generation biofuels (arable crops) and at the same time aiming at increased use of more advanced biofuels that are manufactured from various types of biomass and waste/residues. The ILUC Directive has now been adopted by the Council and Parliament, and entered into force on 9 October 2015[531].

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the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

[527] Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC.

[528] Including EEB, BirdLife Europe, Polish and Slovakian NGOs, German and Finnish environmental authorities.

[529] European Commission 2010, Report from the Commission to the Council and the European Parliament on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling, COM(2010)11 final, 25.2.2010.

[530] European Commission 2014, Commission staff working document, State of play on the sustainability of solid and gaseous biomass used for electricity, heating and cooling in the EU, SWD(2014) 259 final, 28.7.2014.

[531] Directive (EU) 2015/1513 of the European Parliament and of the Council amending Directive 98/70/EC

Wind power

The use of land for the construction of wind farms can affect species and habitats; particularly when there are multiple developments in sensitive areas. Wind turbines may act as barriers to movement of some bird species and may also pose a collision risk for certain types of birds and bats[532]. The cumulative impact of large-scale constructions could thus be considerable. Off-shore wind farms can pollute marine habitats by disturbing contaminated sediments, and through leaking or leaching of oil and hydraulic fluids from construction vessels (Birdlife International, 2011), (Wilhelmsson et al, 2010).

Several stakeholders responding to the evidence gathering questionnaire (including the NGOs from Croatia, Finland, Estonia, Italy and France, as well as environmental authorities from Romania and Flanders) expressed concern that the negative impacts of wind power on natural habitats and species are not sufficiently addressed. BirdLife Europe, in its response, reported that in Bulgaria, wind power plants have been planned in Kaliakria, which is an area with a high concentration of Natura 2000 sites. According to the Royal Society for the Protection of Birds (RSPB), some areas of key habitat found in Kaliakra have already been destroyed. If the proposed developments are not stopped, the area will soon be unable to sustain the thousands of birds dependent on it[533]. Another example of a controversial wind power project is the Oreites wind farm in Cyprus. The wind farm received permission from the environmental authority in 2007 without an AA and was subsequently built in an SPA designated for Raptors. According to the environmental authorities, the wind farm was necessary to reach the renewable energy targets[534].

In 2011, the Commission issued a non-binding Guidance document entitled 'Wind energy developments and Natura 2000'[535]. The document does not make new rules but, rather, provides guidance on the application of those that already exist, in particular with regard to the Nature Directives. It complements the methodological Guidance documents on the provisions of Article 6 of the Habitat Directives, placing them in the context of wind farm development[536]. Another Guidance document related specifically to the impact of wind power infrastructure on birds has been prepared by RSPB and BirdLife (Gove et al, 2013). (Wilhelmsson et al, 2010) provides guidance related to off-shore wind energy.

Experience shows that if these guidelines are applied, the potential negative environmental effects of wind farms can be avoided and some positive synergies can be created. Box 100 below gives examples of good practices in this area.

Box 100 Good practices with respect to wind farms

Environmentally-friendly wind farm development in Scotland

In Whitelle in Scotland, effective and successful cooperation between the wind farm developer and the Scottish RSPB led to the reestablishment of 900 ha of peatland and blanket bog through clearance activities. Considerable habitat mitigation and enhancement provided benefits to breeding waders, farmland birds and other species. This was one of the first wind farm developments in Scotland to integrate habitat enhancement, working with key stakeholders throughout the process. It is a good example of an energy project developed according to the principles of sustainable land use and biodiversity protection.

relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

[532] According to Sovacool (2013), wind farms and nuclear power stations are each responsible for between 0.3 and 0.4 fatalities per gigawatt-hour (GWh) of electricity while power stations supplied by fossil fuel sources are responsible for about 5.2 fatalities per GWh.

[533] http://www.rspb.org.uk/whatwedo/campaigningfornature/casework/details.aspx?id=tcm:9-228284, accessed 6.11.2015

[534] Information received in the evidence gathering questionnaire from a Cypriot NGO.

[535] European Commission, 2011, Wind energy developments and Natura 2000. Guidance document.

[536] European Commission 2000, Assessments of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; European Commission 2001, Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC; European Communities 2012, 'Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'.

Source: RSPB website, http://www.rspb.org.uk/whatwedo/campaigningfornature/casework/details.aspx?id=tcm:9-264454, accessed 25.11.2015 accessed 7.12.15.

Biodiversity tracking system in Portugal
Bio3, a Portuguese company undertaking biodiversity consultancy and research, has developed a free online platform which helps users to properly apply existing methodologies and correctly estimate the species mortality rate associated with human infrastructure such as wind farms. Two successful examples of how to reconcile wind projects and wildlife are the Portuguese Malhanito and Prados wind farms, which lie inside a Natura 2000 site. During the development of the project, baseline studies were conducted in order to identify areas and habitats of ecological relevance. Based on this information, sensitivity maps were developed and considered during the definition of the final layout. The potential impacts on two endangered species, the Bonelli's Eagle on the Malhanito wind farm and the Montagu's Harrier on the Prados wind farm, triggered the development of mitigation plans for both species.
Source: GP Wind Thematic Case Studies, revised May 2012, http://project-gpwind.eu/jdownloads/Public%20Deliverables/deliverables_-_d3.4_-_thematic_case_studies_-_120509_-_pdf20.pdf, accessed 7.12.2015.

Synergies with wind and wave power parks, Denmark
The viability of a combined wave and wind energy park is currently being tested in Denmark. Wind and wave power installations can share foundations and electricity transmission routes, with an associated reduction in overall disturbance of the marine environment, as well as reduction of investment and maintenance costs. Wind and wave power may have complementary periods of optimal performance, and combining the output from both could provide a more continuous electricity supply, with less need for backup energy sources.

Source: (Wilhelmsson et al, 2010).

Unconventional hydrocarbons

Unconventional gas extraction, such as shale gas, requires an intensive well stimulation technique, high-volume hydraulic fracturing, often referred to as 'fracking'. It is a process by which fracturing fluids – a mixture consisting primarily of water, sand and chemical substances (generally between 0.5% and 2% of the total fluid) are injected under high pressure into a geological formation that contains hydrocarbons so as to break the rock and to connect the pores that trap the hydrocarbons. Shale gas extraction mainly takes place on-shore and it typically covers much wider areas than conventional gas extraction. In addition, as productivity of shale gas wells is generally lower than conventional wells, more wells need to be drilled. One of the main environmental concerns is the risk of contamination of ground and surface waters. The extraction of water for drilling and hydraulic fracturing can also put additional stress on aquifers in areas where water is scarce and already competes with other uses (e.g. industry, agriculture, drinking water). This can also impact local ecosystems, thereby affecting biodiversity. The quality of soil may also be negatively affected by leaks and spillage if fracturing fluids and wastewater are not adequately handled. Unless captured and mitigated, fugitive methane emissions can occur during shale gas exploration or production, which would have a negative impact on local air quality and the climate. Air emissions can also result from increased transport and from on-site equipment. In addition, shale gas extraction may have impacts on land fragmentation and local road traffic, both of which can have consequences for biodiversity. The systematic application of good practices can help to prevent or mitigate these negative environmental impacts and risks[537].

Public concerns related to hydraulic fracturing have been raised in some Member States, often referring to insufficient levels of precaution, transparency and consultation, leading to the adoption of temporary moratoria or legal bans on the use of this technology in several Member States[538].

[537] European Commission 2014, Communication from the Commission to the to the European Parliament, the Council and the Committee of the Regions on the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU, COM(2014) 023 final.
[538] European Commission, Impact Assessment Accompanying the document Communication from the Commis-

In January 2014, the Commission adopted a Recommendation to ensure that proper environmental and climate safeguards are in place for fracking[539]. The Recommendation invites Member States to carry out an SEA before granting licences for exploration or production of hydrocarbons that may require the use of high volume hydraulic fracturing. Such assessment should address risks to human health and environment including impacts on biodiversity.

Currently, in many countries in Europe there are bans or severe restrictions on fracking, while in some others initial analyses proved that it is not economically viable. It seems that this type of business does not have much prospect for widespread development in Europe and therefore may not pose as much risk to nature and biodiversity as some stakeholders may currently fear[540].

8.4.3.3.4 Impact of the Nature Directives on energy sector objectives

Some stakeholders, mainly private operators from the energy sector, expressed concerns about the impact of the Nature Directives on energy policy goals, particularly the requirements of Article 6 of the Habitats Directive[541]. These stakeholders expressed the opinion that the intentions of the Habitats Directive to take into account economic, social, cultural and regional requirements, and to make a contribution to the general objective of sustainable development (as stated in the Preamble and expanded in Article 2(3)a, are hindered by the strict approach to the protection of nature and biodiversity taken when implementing the Directive.

In their opinion, national authorities can be overly restrictive in interpreting the concept of adverse effects on Natura 2000 sites, leading to re-examining or denial of permission for key projects supporting security of energy supply objectives. According to Energy UK, this approach is in line with the interpretation of the Directive in guidance issued by the Commission, as well as case law. Eurelectric expresses a similar opinion, stating that there has to be a clear balance between Member State promotion of site integrity and Favourable Conservation Status (delivering the conservation aims of the Habitats Directive) and the overall aim of sustainable development. These stakeholders believe that the challenges in relation to the application of the Habitats Directive often cause delays in energy investments, causing financial implications and making it more difficult to achieve renewable energy targets. The UK Department for Energy and Climate Change (DECC) warned that it is important not to focus narrowly on process rather than outcomes, given the complexity of major infrastructure projects and the variety of development consenting regimes across the EU. The focus should be on ensuring that the purposes of the Directives are secured in the ultimate decision.

Examples highlight both positive and negative aspects. Positive examples generally refer to careful and deliberate cooperation between experts and stakeholders from both the energy sector and the environmental or nature protection sector. This was reinforced by the statement of the DECC representative at the Fitness Check conference on 20 November. It is further demonstrated by the existence and experiences of the RGI, dedicated to ensuring that electricity grid expansion takes place in a way that is compatible with nature protection needs.

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sion to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'Exploration and production hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU, SWD(2014) 21 final 22.1.2014.

[539] Commission Recommendation of 22 January 2014 on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing (2014/70/EU).

[540] Deutsche Welle, 20.07.2015, What ever happened with Europe's fracking boom? http://www.dw.com/en/what-ever-happened-with-europes-fracking-boom/a-18589660

[541] Irish industry association IBEC, Energy UK, Eurelectric and representatives of the wind industry from Sweden.

8.4.3.3.5 Results from the public consultation

Public opinion, as expressed through the online public consultation carried out as part of this evaluation, somewhat mirrors the responses of stakeholders on the question of whether or not EU energy policies support the objectives of the Nature Directives. Business sector respondents largely said 'yes', while NGOs and individuals (guided mainly by NGO campaigns) responded to the contrary, with government relatively split on the question.

Table 38 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for energy

Individual	No	97%
	Yes	1%
	Could do more	1%
	I don't know	1%
Business	No	17%
	Yes	60%
	Could do more	12%
	I don't know	11%
Government	No	37%
	Yes	14%
	Could do more	30%
	I don't know	19%
NGOs	No	52%
	Yes	12%
	Could do more	28%
	I don't know	8%

8.4.3.3.6 Key findings

- The evidence gathered in this part of the evaluation indicates that although EU energy policy does not refer to biodiversity in its main objectives, it is largely coherent with the Nature Directives, creating important synergies with these objectives. The synergies are mainly linked to climate protection policy, however, while replacement of conventional energy sources with renewables is generally seen as favourable for biodiversity, some activities related to renewable energy production can pose biodiversity threats. For example, biofuels policy lacking strong incentives for biodiversity protection for biofuels in non-transport uses creates concern among environmental NGOs. Both negative and positive examples of the impact of energy investments on biodiversity can be seen and, while sectoral guidelines and recommendations help to alleviate alleviating negative impacts, they are not always adequately taken into account. Some negative impacts of the Nature Directives on the development of the energy sector can be observed in relation to an overly strict interpretation of their objectives by some Member States' authorities. The following key findings in relation to coherence of energy policy can be formulated:
- The EU's Energy Union strategy focusses on five closely related and mutually reinforcing dimensions: (1) supply security; (2) a fully integrated internal energy market; (3) energy efficiency; (4) emission reduction; and (5) research and innovation. EU energy policy is closely linked with sustainability and with climate change goals. These can imply important synergies for nature protection and biodiversity, as governed by the climate-energy legislative package and '20-20-20 targets'. These goals imply the construction and operation of new energy infrastructure, which may adversely affect habitats and species. At the same time, some stakeholders in the energy sector see the Nature Directives, particularly the

requirements regarding impacts on Natura 2000 sites, as an obstacle to energy goals.

- The development of grid and pipeline networks for energy transmission and certain technologies for generation of energy from renewable sources are likely to have significant impact. The renewable energy sources most frequently referred to in literature and stakeholder responses as likely to pose threats for biodiversity are biofuels, wind power, shale gas and hydropower. Potential negative impacts from these technologies include fragmentation, degradation and loss of terrestrial and marine habitats, as well as direct harm and mortality to species from construction activities and pollution. Additional concerns relate to the contact of migrating birds and bats with power lines and wind farms. There are also benefits for fauna and flora to be realised from the shift from fossil fuel power to more renewable sources, but this does not lessen the need to find ways to develop the new infrastructure required to meet climate and renewable energy targets in harmony with nature protection requirements.
- There are several legal and policy provisions in place to prevent and mitigate the impacts of the energy sector on the environment. EU environmental legislation, including the EIA and SEA Directives and the Habitats Directive requirements on AA, apply. Sustainability criteria are provided for biofuels production in the RED and FQD, which prohibit the use of high biodiversity value land for production, however, these may not be sufficient. The lack of similar provisions for biomass used in non-transport applications is viewed by stakeholders as a major gap. The Commission issued guidance on wind energy developments and Natura 2000, as well as a Recommendation on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing.
- The Trans-European Networks for energy (TEN-E) Regulation prioritises selected PCIs in the electricity, gas, oil and carbon dioxide transport sectors. These network infrastructure projects benefit from 'streamlined' permitting procedures in the Member States, including a requirement to streamline the applicable environmental assessment procedures (e.g. SEA, EIA, AA, etc.). PCIs may be considered to be of overriding public interest with respect to the Habitats Directive Article 6(4), assuming the necessary conditions have been met. The Commission has issued a Guidance document for Member States on taking measures to streamline environmental assessments for energy infrastructure PCIs. This document is based on good practices in carrying out effective environmental assessments in this sector. At present there is limited experience with permitting and implementing PCIs in the EU.
- Both literature and stakeholder responses contain examples of cases where energy infrastructure projects have threatened habitats and species. At the same time, there are substantial examples of best practice and cooperation between the energy sector and environmental NGOs, with a firm belief by some stakeholders that EU energy policy and nature conservation goals are not incompatible. The Renewables Grid Initiative declaration, signed in 2011 by 24 environmental NGOs and the biggest TSOs in Europe, sets out that there does not have to be conflict between energy and biodiversity goals, with both parties pledging to work together.

8.4.3.4 Fisheries

8.4.3.4.1 Introduction and sources of information

This section assesses whether or not the provisions of the EU Nature Directives are sufficiently considered and integrated in the EU Common Fisheries Policy (CFP). The analysis examines the extent to which the objectives of the nature legislation interact with those of the CFP, and the means of interaction in the implementation of the Directives' specific objectives, such as the establishment of Natura 2000 or the site protection and management described in the intervention logic in section 2.3 of the study. This approach is in line with the judgement criteria defined for the whole question C.4/C.5 in section 8.4.

The main sources of information for this analysis are the literature review and responses to the evidence gathering questionnaire, including case studies provided by stakeholders in their answers. The question on the coherence between the Nature Directives and the CFP received 24 responses from authorities, NGOs and the private sector at both national and EU level through their relevant associations. The literature reviewed drew on EU policy documents related to the CFP, in particular the Commission's 2009 Guidance on the CFP[542]. The analysis, therefore, includes an assessment of the ways in which specific articles of the relevant legislation support or contradict each other. As the CFP involves spending programmes, the ways in which these spending programmes are implemented are also examined. (This issue is covered in greater detail in section 8.6).

8.4.3.4.2 Interactions

The interaction between nature conservation and fisheries is complex. While fisheries depends on the sustainability of marine resources, it has, itself, the potential to be harmful, due to the effects on biodiversity linked to overfishing or habitat damage (e.g. bottom trawling affecting marine habitat types such as sandbanks, sandflats or reefs).

While the Nature Directives impose strict obligations on Member States for the protection of marine habitats and species both inside and outside Natura 2000 sites, the adoption of restrictions on harmful fishing activities was not widespread under the previous CFP (2007-2013). According to (Born et al, 2015Chapter 21), difficulties arose from a lack of clear objectives in the previous CFP, uncertainty about the competence of Member States to adopt conservation measures while the EU holds exclusive competence in the field of fisheries, the unwillingness of some Member States to ensure that fishing fleets comply with certain limitations in marine Natura 2000 areas, and the lack of strict regulations in the use of certain fishing tools.

The reformed CFP has brought changes to the legal and policy framework, to deal with those challenges and promote greater coherence with nature conservation objectives. Eight of the 24 stakeholders referring to the fisheries policy in their evidence gathering questionnaire noted that the changes in the new CFP are promising, although more time is needed to see positive results[543]. At the same time, 97% of the respondents to the online public consultation believed that the fisheries and maritime policy could contribute more to the objectives of the Birds and Habitats Directives.

The analysis of the coherence between the implementation of the Nature Directives and the CFP focuses on the expected results linked to the specific objectives of the Nature Directives described in the intervention logic (see section 2.3). However, in line with the judgement criteria, a short analysis of the coherence between the CFP and the Nature Directives' is first presented, at the level of their general objectives.

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[542] http://ec.europa.eu/environment/nature/natura2000/marine/docs/Fisheries%20methodology.pdf accessed 17.02.16

[543] This opinion was expressed by EEB, Birdlife Europe, WWF, German, Swedish and Croatian NGOs, Danish Agri-Fish Agency and the Croatian Ministry of Agriculture.

8.4.3.4.3 Coherence of CFP with the Nature Directives: strategic objectives

The Nature Directives' strategic objectives require Member States to adopt measures designed to maintain or restore to Favourable Conservation Status, habitats and species of Community interest. This obligation is applicable to the marine environment.

The current legal framework of the EU fisheries policy can be considered coherent with the Nature Directives as the conservation of marine resources is specifically stated as a strategic objective in the 2013 CFP Regulation. Specific guidelines and funding instruments on fisheries and nature protection are also in place. The majority of the evidence gathering questionnaires stated that the CFP has evolved in the direction of integrating nature and biodiversity considerations.

The awareness of the alarming decline of fish stocks and the impact on the fisheries industry drove decision makers to set objectives under the CFP, and in particular under 2002 Basic Regulation, to ensure the sustainability of fisheries resources. Article 1 of this 2002 Regulation called for coherent measures concerning, *inter alia*, 'conservation, management and exploitation of living aquatic resources' and 'limitation of the environmental impact of fishing', while Article 2 described the CFP's main aim to 'ensure the exploitation of living aquatic resources that provides sustainable economic, environmental and social conditions'[544].

The EU and its Member States have repeatedly committed themselves to protecting Europe's marine biodiversity, and to applying the Birds and Habitats Directives throughout Europe's marine waters (Owen, 2004). The Integrated Maritime Policy established in 2007 aimed at, inter-alia, better protection of the marine environment by facilitating the cooperation of all maritime players across sectors and borders, while the MSFD adopted in 2008 established a comprehensive framework for EU action in the marine environment[545].

Evidence from literature, including the Commission's 2009 Guide on the Common Fisheries Policy (European Commission, 2008c) and (Born et al, 2015Chapter 21) shows that despite efforts, the alarming decline of fish stocks in the European waters has not been arrested, and that, even though the Basic Regulation of 2002 referred to the implementation of the precautionary approach, the EU fisheries policy continued to adopt 'short-term decision-making and short-sighted behaviour', disregarding environmental concerns in favour of economic interests. This opinion is shared by numerous stakeholders including the World Wide Fund for Nature (WWF), the German Ministry of Environment and BirdLife Europe.

The reformed CFP improves the coherence between these EU policies. According to the new CFP Regulation adopted in December 2013, the CFP should contribute to the protection of the marine environment, to the sustainable management of all commercially exploited species, and, in particular, to the achievement of good environmental status in the marine environment by 2020 (as referred to in recital 11 in accordance with Article 1(1) of the MSFD[546] (European Commission, 2012h).

Regulation 1380/2013 establishes a CFP objective to ensure that fishing and aquaculture activities are environmentally sustainable in the long-term, and are managed in a manner consistent with achieving economic, social and employment benefits, and contributing to the availability of food supplies. It calls for an ecosystem-based approach to fisheries management, one which will ensure that the negative impact of fishing activities

[544] Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy.
[545] The Integrated Maritime Policy (IMP) is a holistic approach to all sea-related EU policies. Legal basis: Regulation (EC) No 1255/2011 of 30 November 2011 establishing a Programme to support the further development of an Integrated Maritime Policy, replaced by Regulation 508/2014 of 15 May 2014 on the European Maritime and Fisheries Fund.
[546] Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

on the marine ecosystem is minimised. Such an approach would also work to ensure that aquaculture and fisheries activities avoid the degradation of the marine environment. Specific objectives of the Regulation include the gradual elimination of discards, as well as avoiding and reducing unwanted catches to the greatest extent possible. It also requires that the CFP applies the precautionary approach and that, in order to reach the objective of progressively restoring and maintaining populations of fish stocks, the maximum sustainable yield exploitation rate shall be achieved by 2015 where possible and on a progressive, incremental basis by 2020 at the latest for all stocks.

The evolution of the CFP has been marked by a progressive integration of conservation objectives. The new CFP legal framework more successfully integrates nature and biodiversity considerations and improves the coherence with the Nature Directives. However, it is too early to assess the impact of these legislative changes which will also depend on the actual implementation by Member States.

8.4.3.4.4 Coherence of CFP with the Nature Directives: specific objectives

Establishment of the Natura 2000 network: site designation

The establishment of the Natura 2000 network in the marine environment represents the larger contribution to the more comprehensive process of creation of Marine Protected Areas (MPAs) at European level and a key contribution at international, regional and national level[547]. The use of spatial management tools such as MPAs for conserving marine biodiversity originated in the World Park Congress of 1982 in Bali (Paulomäki et al, 2014). Since then, many international agreements have reinforced the need for establishing MPAs. In 2003, for example, the 5th World Parks Congress called on the international community to create a global system of MPA networks. The Convention on Biological Diversity (CBD), under the ambitious Aichi Biodiversity Targets, called for spatial protection measures covering at least 10% of the world's coastal and marine areas by 2020.

The interactions or potential conflicts between the Nature Directives and the CFP are constrained by the narrow coverage of marine habitats and species in the Nature Directives. The establishment of the marine Natura 2000 network is limited to certain types of habitats and species, and excludes most of the species that are commercially exploited (Born et al, 2015p 378). The two Directives focus on a sub-set of threatened and vulnerable marine species and habitats in the EU's marine environment. The Habitats Directive lists nine marine habitat types and 16 species for which marine site designation is required, while the Birds Directive lists about 60 bird species whose conservation requires marine site protection. These lists do not include several marine features, particularly those from benthic communities, such as eelgrass beds and soft bottom communities, even though these need to be protected in order to secure healthy ecosystems and their functions (Paulomäki et al, 2014).

Fisheries does not affect the designation process of Natura 2000 sites as, under case law, socio-economic interests do not have a role in Natura 2000 site designation, which is based solely on scientific information and stakeholder involvement[548]. The European Court of Justice (CJEU) has stated repeatedly that the provision of taking into account economic, social and cultural requirements and regional and local characteristics, is relevant only in the context of the management of Natura 2000 sites. In the *Stadt papenburg* ruling, for example, the CJEU stated that any decision regarding the inclusion of one or more sites in the list of SCIs can only be based on environmental protection grounds[549].

The identification and delimitation of SPAs and SCIs can be more challenging for marine species and habitats than for terrestrial ones. The establishment of the Natura 2000 net-

[547] Report on the progress in establishing marine protected areas, European Commission, 01.10.2015.
[548] Information obtained from public authorities during National Mission to France.
[549] Case C-226/08 *Stadt Papenburg v Bundesrepublik Deutschaland*, 2010, ECR I-131.

work in the marine environment lags behind the designation of terrestrial sites due to legal uncertainties and lack of knowledge. Stakeholders and the literature suggest that the wide dispersal of some species, along with a lack of data and information regarding their distribution and dynamics (Dotinga and Trouwborst, 2009), are complicating factors in the designation process. In addition, the CJEU jurisprudence clarifying that the Birds and Habitats Directives - and hence the obligation for Natura 2000 establishment - apply not only in territorial waters but in all marine areas where Member States exercise sovereign rights, meant that the process for site nominations was accelerated[550]. . In order to facilitate this process, the Commission published various guidelines to facilitate the selection and management of marine Natura 2000 sites (MEPA, 2004) and MPAs more generally (OSPAR Commission, 2003), (WCPA, 1999), as well as guidelines for fisheries measures in Natura 2000 sites (European Commission, 2007c). References were also made to relevant requirements under the Regional Sea Conventions.

In recent years, inshore and offshore sites have been added to the Natura 2000 network, covering extensive marine areas falling within the jurisdiction of Member States. As at the end of 2014, the Natura 2000 network includes over 3,000 MPAs, covering more than 300,000 km^2, and representing more than 5% of the total EU marine area. This is, however, significantly short of the global target of 10% set by the CBD[551]. Furthermore, significant discrepancies exist among the various regional seas, with a significant gap between inshore areas – which are relatively better covered - and offshore areas (i.e. beyond territorial waters) (EEA, 2015b).

The MSFD (2008/56/EC) is the first EU wide instrument aimed specifically at protecting and preserving the marine environment as a whole, and provides another link to the Natura 2000 network. This Directive seeks to achieve or maintain good environmental status in the Community's marine environment. To this end, it promotes an ecosystem-based approach to the management of human activities, while enabling the sustainable use of marine goods and services. This approach is different to that taken by the Nature Directives, and raises the possibility that the MSFD can overcome the weakness of the Nature Directives by requiring Member States to establish spatial protection measures covering more types of marine habitats and species, and contributing to coherent and representative networks of marine protected areas (Article 13). Therefore, Member States can complement their Natura 2000 network with additional 'MSFD-specific measures', either through the designation of new MPAs for specific conservation purpose, or through the adoption of new management measures to reduce specific threats.

The coherence issues arising between the CFP and the Nature Directives in relation to the designation of marine protected areas, and in particular under the Natura 2000 network, have been resolved through amendments in legislation, clarification of some legal uncertainties by the CJEU and the relevant Commission Guidance documents. The process for site designation has accelerated, although it is not yet fully complete. Complicating factors in the designation process remain, due to the lack of data and information about the distribution and dynamics of some species (Dotinga and Trouwborst, 2009).

Protection and management of Natura 2000 marine sites

The fisheries sector is no longer considered separately from the broader maritime environment and from other policies dealing with marine activities. Fisheries are heavily dependent on access to maritime space and to healthy marine ecosystems. The area where the Nature Directives and the CFP have considerable potential for interaction relates to the protection and management of Natura 2000 sites. Under Article 6(1) of the Habitats Directive, Member States are required to establish necessary conservation measures for

[550] Case C-6/04 – *Commission of the European Communities v. United Kingdom of Great Britain and Northern Ireland*. Failure of a Member State to fulfil obligations – Directive 92/43/EEC – Conservation of natural habitats – Wild fauna and flora. Judgment of the Court (Second Chamber) of 20 October 2005. The opinion of the Court argues: 'While the Habitats Directive admittedly contains no express rule concerning its territorial scope, it is consonant with its objectives to apply it beyond coastal waters.'

[551] http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat37_en.pdf, accessed 8.12.15

the habitats and species listed in Annex I and II of the Habitats Directive. While this article does not apply to SPAs, similar requirements are contained in Article 4(1) and (2) of the Birds Directive. In terms of timing, these provisions are linked to Article 4(4) of the Habitats Directive requiring the designation of SCIs as SACs, and the establishment of conservation priorities within six years of the adoption of the list of SCIs. Article 6(2) of the Habitats Directive requires Member States to take appropriate steps to avoid, in the SACs, the deterioration of natural habitats and the habitats of species, as well as disturbance of the species for which the areas have been designated, insofar as such disturbance would significantly affect the objectives of the Directive.

Evidence from literature and from some evidence gathering questionnaires (national authorities and NGOs) referred to the legal inconsistencies under the previous CFP that acted as a barrier to Member States' competence to adopt conservation measures restricting certain fishing practices in compliance with the obligations under the Nature Directives. Article 3 of the Treaty on the Functioning of the European Union (TFEU) recognises the exclusive competence of the EU in the conservation of marine biological resources under the CFP, while Article 4 of the TFEU states that the competence in fisheries (excluding the conservation of marine biological resources) is shared between the EU and Member States. The exclusive competence of the EU for the adoption of measures in the field of CFP, confirmed by the CJEU, limited the possibility for Member States to adopt conservation measures that would involve fisheries management, even in cases where Member States would be liable for not complying with the obligations under the Nature Directives[552].

This uncertainty regarding Member States' competence to comply with their obligations in the marine environment under the Habitats and Birds Directives and the competence to act under the CFP, have been tackled in the new CFP. Article 6 of Regulation 1380/2015 requires the EU to adopt conservation measures for the conservation and sustainable exploitation of marine biological resources. They include those measures necessary to comply with obligations under the EU environmental legislation adopted (Article 11 of Regulation 1380/2013). This Article represents a significant improvement, as it lays down specific provisions for establishing fisheries measures for the conservation of Natura 2000 sites and other MPAs. According to these provisions, Member States are authorised to adopt the conservation measures necessary to fulfil the obligations of the Nature Directives where such measures do not affect the fisheries' interest of other Member States. DG Environment is designated to manage the process of compromise in cases of conflicts of interest between Member States. Client Earth (Client Earth, 2015a) points out that there is still scope for confusion, in particular between measures 'affecting vessels of other Member States' in Article 11(1), and measures affecting fisheries 'subject to a direct management interest' of other Member States in Article 11(2). Guidance from the Commission would help to avoid unintended gaps or loopholes.

These provisions clarify the process for the adoption of measures related to the implementation of Article 6 of the Habitats Directive and Article 4 of the Birds Directive, requiring the adoption of protection measures in Natura 2000 areas to avert the deterioration of protected habitats and the disturbance of protected species.

Some concerns have been expressed about the breadth of conservation measures that will actually be adopted by Member States and the monitoring of this objective, as they should support the overall objective of achieving Favourable Conservation Status and, therefore, also cover areas that are not part of the Natura 2000 network, especially in cases where marine Natura 2000 sites are suffering from external pressures such as dredging or fisheries.

While the process of establishing **conservation measures**, including the preparation of **management plans** for marine areas, benefits from the lessons learned from the terrestrial Natura 2000 areas, the implementation is challenging because of the lack of scientific data, lack of a consistent approach to this issue across the Member States, and conflict of interest between the nature protection sector and the fisheries sector. This has

[552] Joined cases C-3, 4, & 6/76 *Cornelis Kramer and Others*, 1976; Case C-804/79 *Commission v. United Kingdom*, 1981.

been reflected both in literature (Fock, 2011) and in the evidence gathering questionnaires and it highlights the need for more harmonisation in the implementation of management plans[553]. In areas beyond territorial waters, this involves international cooperation.

Two examples below show that while the adoption of the Habitats Directive contributed to significant positive changes in managing marine biodiversity, further work needs to be done to ensure full coherence and integration[554].

Box 101 Significant positive changes in managing marine biodiversity

Sustainable marine practices in Wales
In Wales, dredging for King Scallops has been carried out in Cardigan Bay for many years, until recently at a relatively low level with minimal impact on the bay's biodiversity. Parts of Cardigan Bay have been designated as an SAC, alongside the nearby Pembroke Marine SAC. In 2006, up to 60 scallop dredgers were reported to be operating in the Bay at one time, including within the boundaries of the Cardigan Bay SAC, and further south in Pembroke Marine SAC. The increased scallop fishing pressure threatened the biodiversity of the bay by potentially causing impacts on the population of Bottlenose Dolphin from the deterioration of habitat and prey depletion.

Pressure from Welsh inshore fishing fleets, environmental NGOs and politicians resulted in the Wales Scallop Order (2010) that closed all inshore waters to scallop dredgers, whilst allowing boats access to part of one site (Cardigan Bay)[555]. The Order shows the importance of the Habitats Directive in promoting sustainable fishing practices and avoiding damaging practices, while also protecting the interests of biodiversity and the majority of local inshore Welsh fishermen (who use sustainable pot fishing).

ASCOBANS capture and monitoring[556]
There has been limited compliance with the Habitats Directive requirements to monitor the incidental capture and killing of Annex IV species (Article 12) in fisheries, or to implement effective conservation measures to prevent bycatch. While monitoring requirements are not specified, given that the stated aim is to 'ensure that incidental capture and killing does not have a significant negative impact on the species concerned', monitoring schemes should at least enable authorities to determine whether or not significant negative impacts are occurring.

In 2014 the ASCOBANS steering group for the conservation plan for the Harbour Porpoise in the North Sea concluded that:

'except in a few sectors, the level of bycatch monitoring is very low and well below 1%....monitoring conducted by Member States, if any, is at present insufficient for getting a proper evaluation of the extent of bycatch of harbour porpoises in the North Sea at large…Implementation of conservation measures requires formulating explicit conservation and management objectives, which have not been agreed upon at present. There is overall limited compliance to the Habitats Directive requirements amongst Member States with regards to monitoring and assessment of the impact of bycatch on harbour porpoise populations, and consequently implementation of conservation measures as required'[557].

This lack of monitoring likely extends to other Annex IV species incidentally bycaught in fisheries and other geographical areas.

Some of the issues raised in the evidence gathering questionnaires relate to the stakeholders' participation in the drafting of conservation measures or management plans.

Commission Guidance documents on Article 6(1) promote the development of management plans through a participatory process involving all relevant stakeholders. However, the implementation of this recommendation forms part of Member States' discretionary power on implementation of the Directives' objectives. As a result, while NGOs in several

[553] Five stakeholders responding to the evidence gathering questionnaire have pointed to problems with drawing up management plans for fisheries, namely: WWF, BirdLife, Polish, German and Croatian NGOs.
[554] These examples have been provided by the UK NGOs (Joint Links).
[555] http://www.legislation.gov.uk/wsi/2010/269/contents/made accessed 8.12.15
[556] Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas.
[557] http://www.ascobans.org/sites/default/files/document/ASCOBANS_NSG4_Report.pdf , accessed 8.12.15

Member States considered their involvement in the adoption of conservation measures to be sufficient, it remains a challenge in others. Croatian NGOs, for example, state their lack of involvement in preparing the strategic plans for the fisheries sector (e.g. the Operational Programme for Fisheries) and Spanish NGOS complained about the systematic lack of appropriate information / consultation for the development of the management plans for SACs.

Representatives of the fisheries sector in these countries also believe that there is a lack of meaningful participation in the adoption of management plans for marine sites, although the situation has improved lately[558]. By contrast, representatives of the sector in France acknowledged that they have been able to participate fully in the drafting of relevant management plans, due to the scheme developed by the French authorities for the implementation of the Habitats Directive. This system is based on four main principles for the transposition and the implementation of the Habitats Directive adopted by the French Government. It requires public participation of all actors at all stages of a site life-cycle, including the adoption of the document setting the conservation objectives (DOCOB) for each Natura 2000 site which is drafted by an operator together with the members of the COPIL, Steering Committee involving all relevant stakeholders in each site[559][560]. These documents led to the adoption of 'Natura 2000 Contracts' for each site. This system ensures the respect of the overarching principle of sustainable development (rather than pure nature conservation) where socio-economic considerations are taken into account. The participation of stakeholders in the implementation of the Directives varies depending on national choices and decisions on implementation of the Directives.

The Dogger Bank case provides an example of a negotiation process between the German, Dutch, British and Danish authorities and the involvement of stakeholders, which led to establishment of a management plan for this site. The plan seeks to protect the sandbank habitat from damaging impact of fishing activities (seeHerbert and (ed.), 2012).

Several research projects co-funded by the EU assist the process of marine sites' designation and management, providing the necessary scientific analyses and establishing a platform for reconciliation of interests of various stakeholders. These include INDEMARES (Spain) and FIMPAS (the Netherlands)[561]. A similar project, EMPAS was funded by the German government[562].

The stated inconsistencies under the previous CFP that acted as a barrier for Member States to adopt conservation measures and restrict certain fishing practices, are addressed by the new CFP, which, together with the current progress in site designation and the increased involvement of stakeholders, allows for greater coherence between CFP and the objectives of the Nature Directives. In particular Article 11 of the Regulation on CFP provides a clearer framework for the adoption of conservation measures in compliance with the expected operational objectives under the Nature Directives (as described in the intervention logic under section 2.3 of the study).

Despite learning from the terrestrial Natura 2000 sites, the establishment of conservation measures, including management plans when needed, in marine sites remains challenging, given the lack of scientific data, inconsistent approaches across Member States and conflicts of interests between nature protection and fisheries sectors, particularly where measures are required to cover areas that are not part of the Natura 2000 network.

[558] Mission to Spain, 5 May 2015. Cofradia nacional de pescadores and the document 'Circular 71/09 Red Natura 2000 dated on 9 June 2009, shared as a follow up to the meeting by the President of the fishermen in Spain.
[559] French Ministry of Sustainable Development website: http://www.developpement-durable.gouv.fr/Les-documents-d-objectifs.html accessed 8.12.15
[560] French Ministry of Sustainable Development website: http://www.developpement-durable.gouv.fr/Le-comite-de-pilotage.html accessed 8.12.15
[561] http://www.indemares.es/en/project/description accessed 8.12.15
[562] https://www.bfn.de/18588.html accessed 8.12.15

Safeguards to avoid damaging fishing practices (including Appropriate Assessments)

Some fishing techniques may have a negative impact on the main objectives of the Nature Directives. Several regulations covering technical measures have been adopted in recent years to regulate issues such as minimum landing sizes, specifications for design and use of gears, measures to limit by-catches, and other measures limiting destructive fishing practices[563]. During the previous CFP some Member States adopted measures restricting environmentally damaging fishing practices within their 12 nautical mile zone (territorial waters) under Article 9 of the 2002 Basic CFP Regulation.

Those measures could complement the provisions of the Habitats Directive by setting out a set of procedural and substantive safeguards under its Articles 6(3) and 6(4) in order to avoid damage from plans and projects likely to have a significant effect on Natura 2000 sites. Under Article 6(3) of the Habitats Directive, the plans and projects likely to affect the Natura 2000 sites have to be subject to Appropriate Assessment (AA). This affects all activities including fisheries and aquaculture. Such assessments, if properly carried out and taken into account by the competent authorities, limit the impact of projects on biodiversity in the Natura 2000 sites.

Box 102 Example of a package of measures restricting damaging fishing practices in the Netherlands.

- On two separate occasions, the Netherlands has presented a package of measures restricting beam-trawling (also applicable to foreign vessels) within marine Natura 2000 sites located within Dutch territorial waters. The first proposal concerned the Voordelta, a marine Natura 2000 site designated as an SPA under the Birds Directive in 2000 and as an SAC under the Habitats Directive in 2008. The proposed measures served as compensation for the construction of harbour facilities 'Maasvlakte2' in the Voordelta area. The measures restricted access for beam trawlers with an engine capacity greater than 191 KW and created five rest zones for birds and seals where fishing and most other activities are prohibited. According to the Commission, such measures are in line with the requirements of the 2002 CFP Basic Regulations and are not discriminatory as they apply equally to all vessels operating within the area.
- Encouraged by the success of the harbour Voordelta case, the Netherlands envisaged a more comprehensive regulation for beam-trawling activities in all of its marine Natura 2000 sites located within its territorial waters under Article 6(3) of the Habitats Directive. Negotiations involving competent authorities, the environmental NGOs and the fisheries sector led to the adoption, in 2011, of the so-called VIBEG (*Visserij in Beschermde Gebieden*, Fisheries in Protected Areas agreement). This agreement provides for a zoning of the Natura 2000 sites, involving a phase-out of heavy beam-trawling in some parts and restrictions in other parts of the areas covered. All fishing vessels that are allowed to fish in the area must obtain a permit under the Dutch Nature Conservation Act. The agreement aims to reconcile economic and conservation interests in the fisheries sector.

Sources: (Born et al, 2015), Agreements for the regulation and development of fisheries and nature conservation in the North Sea Coastal Zone and Vlakte van de Raan Natura 2000 sites from 2011[564].

The CJEU has clarified certain aspects of these provisions which are applicable to fisheries activities likely to affect Natura 2000 areas, thereby ensuring coherence in the implementation of both policies. In case C-241/08 *Commission v. France*, the CJEU established that systematically exempting certain activities such as fisheries and aquaculture from the protection regime for Natura 2000 sites, would seriously jeopardise the Habitats Directive objectives. It requires Member States to carry out AA of impacts on Natura 2000 sites from all type of activities, including fishing and aquaculture, as they constitute activities that could cause disturbance or have such an effect[565].

[563] http://ec.europa.eu/fisheries/cfp/fishing_rules/technical_measures/index_en.htm accessed 8.12.15
[564] http://www.nsrac.org/wp-content/uploads/2012/03/VIBEG-Agreement.pdf accessed 8.12.15
[565] C-241/08 *Commission v. France* [2010] ECR I-01697.

The Court has clearly stated in the case *Marais Poitevin* C-96/98 *Commission v. France* that the lack of coherence among EU polices, such as the existence of EU subsidies financing projects or activities damaging nature objectives, does not authorise Member States to breach its obligation to combat deterioration of a SPA. Following this interpretation, the WWF, together with other NGOs, are bringing legal action against Germany's environment ministry for failing to prevent 10 harmful fishing practices in protected areas of the Baltic and North Seas[566].

In the Waddenzee case C-127/02, 2004, the CJEU clarified that activities such as mechanical cockle fishing that have been carried out for many years but are subject to licence for a limited period, should be subject to Article 6(3), and each permit should entail a new assessment both of the possibility of carrying out that activity and the impact on the site. The requirements of Article 6(3) of the Habitats Directive are therefore applicable to any fishing practices subject to permitting schemes, unless the activity is subject to the exception for ongoing activities that have been granted a permit before the Natura 2000 site was designated. In that case, (Born et al, 2015p 385) the requirements of Article 6(2) of the Habitats Directive would be applicable, implying that the same level of protection must be ensured[567].

The CJEU also clarified that the precautionary principle is applicable in the framework of Article 6(3) of the Habitats Directive, stating in the Waddenzee case that only where no reasonable scientific doubts remain in relation to the absence of an impact on the Natura 2000 site, can the activity go ahead. According to (Born et al, 2015), the same reasoning is also applicable within the framework of Article 6(2), and Member States cannot, therefore, use the lack of scientific certainty as an argument to postpone the adoption of preventative measures to avoid a deterioration of natural habitats.

Where such a level of certainty cannot be achieved, the project falls within the requirements of Article 6(4) of the Habitats Directive and, therefore, those activities damaging a Natura 2000 site can only be carried out when there are no alternative solutions, and if they correspond to imperative reasons of overriding public interest and are subject to compensatory measures.

While the implementation of these provisions in the marine environment benefit from the lessons learned from the terrestrial Natura 2000 sites (stakeholders' evidence gathering questionnaires of stakeholders both private sector and NGOs) and it is recognised to be progressing according to the expected objectives, some conflicts have emerged, in particular in relation to aquaculture activities. However, the evidence found is limited and reflects individual situations rather than being representative of a general inconsistency. Concerns regarding the implementation of these rules in relation to the licensing procedures in aquaculture have been raised by several stakeholders representing this sector (evidence submitted by the Federation of European Aquaculture Producers). Representatives of the sector in a few Member States allege that it is almost impossible to get a permit for aquaculture activities in accordance with Article 6(3) of the Habitats Directive, due to the precautionary principle[568]. On the other hand, Irish NGOs point out that the new system for aquaculture licensing introduced in Ireland does not sufficiently prevent adverse effects of aquaculture, such as the problem of invasive species (Stout et al, 2012). These stakeholders state that even under the new AA rules, the precautionary response required by the CJEU is not being adopted, and aquaculture activities are being permitted even where there is potential for significant effects[569].

The European Court of Auditors special report on 'The effectiveness of EFF support for aquaculture' recognises that complicated licensing procedures (European Court of Auditors, 2014c) are a factor impacting on the development of sustainable aquaculture. However, several stakeholders from national authorities, such as the Cyprus Department

[566] Information received from the WWF in the evidence gathering questionnaire.
[567] Case C-404/09 *European Commission v. Spain*, 2011.
[568] Denmark, the UK and Czech Republic.
[569] See the judgement of the Court (Grand Chamber) of 7 September 2004, case C-127/02 *Waddenvereniging and Vogelsbeschermingvereniging*, Directive 92/43/EEC – Conservation of natural habitats and wild flora and fauna – Concept of 'plan' or 'project' – Assessment of the implications of certain plans or projects for the protected site.

of Fisheries, or the Croatian Ministry of Agriculture, consider that the provisions of the Habitats Directive are sufficiently taken into account in aquaculture development. Some countries decide that aquaculture is not practiced in the MPAs, while others stress that environmental considerations are among the priorities for the development of aquaculture, particularly within the areas of protected nature. Guidance documents on Aquaculture and Natura 2000 issued by the Commission in 2012 (European Commission, 2012e) provide greater clarity and explain the potential synergies and conflicts between the aquaculture and the objectives of the Nature Directives. Focus should be placed on ensuring that the Guidance document is known and implemented by the competent authorities at local level, e.g. through training of permitting authorities[570].

The framework established by the new CFP Regulation 1380/2013, allows Member States to act against harmful fishing practices that could adversely affect the achievement of the conservation objectives in Natura 2000 sites. This is expected to bring positive changes and better protection of the marine environment.

Financial support

The European Maritime and Fisheries Fund (EMFF) is the financial instrument supporting the implementation of the CFP[571.] The new EMFF Regulation contains a series of measures that can be considered as beneficial for biodiversity[572]. These include:

- Article 34: Permanent cessation of fishing activities (see also negative impacts below).
- Article 36: Support to systems of allocation of fishing opportunities.
- Article 37: Support for the design and implementation of conservation measures.
- Article 38: Limiting the impact of fishing on the marine environment, and adapting fishing to the protection of species.
- Article 39: Innovation linked to the conservation of marine biological resources.
- Article 40: Protection and restoration of marine biodiversity and ecosystems, and compensation regimes in the framework of sustainable fishing activities.
- Article 44: Inland fishing and inland aquatic fauna and flora.
- Article 53: Conversion of aquaculture to eco-management and audit schemes and organic aquaculture.
- Article 54: Aquaculture providing environmental services.
- Article 79b: Promotion of the protection of the marine environment, and the sustainable use of marine and coastal resources.

Other less directly relevant measures may also be designed to provide positive results for biodiversity and ecosystem services.

According to the annual implementation report of the EFF for 2013 the Fund's commitments in the fishery and aquaculture sector for the period from 1 January 2007 to 31 May 2014 amounted to EUR 3.41bn[573]. The five most frequently used measures were: support for fish processing, permanent cessation, aquaculture, fishing ports, and development of fisheries areas.

[570] Opinion of DG Mare, meeting on 15 July 2015.
[571] In the 2007-2013 financing term the fund was the European Fisheries Fund, while in the 2014-2020 financing term it was changed to the European Maritime Fisheries Fund.
[572] Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council.
[573] European Commission, 2014, Report from the Commission, Seventh annual report on the implementation of the European Fisheries Fund (2013), COM(2014) 738 final, 16.12.2014.

In addition to the interventions with (potentially) positive impacts on biodiversity, the measures supported by the EFF during the previous CFP exerted some negative impacts on marine biodiversity. For example, modernisation of fishing vessels, support for young fishers wishing to enter the industry, modernisation of fish processing and port facilities, as well as aquaculture facilities and marketing improvements, although not intended to harm biodiversity, unintentionally maintained fishing effort at unsustainable levels, which did not comply with sustainable fisheries objectives (IEEP et al, 2012)[574][575]. One of the problems identified was that the investments increasing fishing ability were not clearly defined. In practice, some eligible investments in a vessel could increase its ability to catch fish. Similarly, vessel decommissioning schemes may be beneficial for reducing overcapacity in terms of numbers of vessels, but this measure has promoted the increase in the capacity of the remaining vessels by providing operators with the funds to invest in technical capacity (European Court of Auditors, 2011b). Regarding aquaculture, the European Court of Auditors (European Court of Auditors, 2014c) found that the EFF did not, in practice, provide significant support for environmental sustainability. The bulk of funding in this area was directed at measures to maintain production, with little use made of selection criteria regarding environmental risks.

These problems related to the EFF support have been raised by several stakeholders in respect of the previous financial context. Now, however, the EMFF provides substantial improvements in terms of preventing fishing overcapacity (Client Earth, 2015b). Other environmental safeguards - including targeting support for aquaculture with a high level of environmental protection - are also strengthened. The marketing improvements under the new CFP have a two-fold objective, to improve revenues for producers while ensuring sustainable management of the resources (both wild and farmed). It is as yet too soon for evidence that the changes introduced in the new CFP and EMFF have led to substantial improvements in this area.

Results from the online public consultation

The relevant question (Q10) to assess public opinion about the coherence between the Nature Directives and the CFP was under Part I of the questionnaire which received 552,472 responses. As stated in the report presenting the results of the online public consultation, a significant number of replies were stimulated by targeted campaigns that had been prepared by different interest groups. At least 12 such campaigns were identified. The responses in Part I of the questionnaire reflect substantial support for the largest campaign: the Nature Alert campaign, organised by a consortium of environmental NGOs. However, the analysis offered in the report examines responses by the different types of stakeholders (individuals, business sector, NGO, etc.) and by different fields of interest (nature, hunting, forestry, etc.) allowing an examination of how different interest groups varied in their opinions.

While the question did not differentiate between CFP periods, it can be assumed that the stakeholders were referring to the new CFP, acknowledging its potential for improved coherence. Overall, the vast majority of respondents (97%) believed that the CFP[576] could be more coherent with, and supportive of, the Nature Directives' objectives. Very few respondents considered the CFP not coherent with the Nature Directives. This is in line with the results of the analysis based on the literature and the evidence gathering questionnaires, which highlights the improvements from the CFP before its last revision and concludes that the new CFP legal framework seems to better integrate nature and biodiversity considerations. However, it is worth pointing out that about half of the respondents from the private or business sector consider the CFP to be fully supportive of the Nature Directives.

[574] European Commission 2009, Green paper on the reform of the Common Fisheries Policy, COM(2009)163 final, 22.4.2009.
[575] European Commission, 2012, Report from the Commission to the European Parliament and the Council on Member States' efforts during 2010 to achieve a sustainable balance between fishing capacity and fishing opportunities, COM(2015) 563 final, 11.11.2015.
[576] The question did not refer specifically to the reformed CFP.

Table 39 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for the Fisheries and maritime sector

Individual	No	1%
	Yes	1%
	Could do more	97%
	I don't know	1%
Business	No	8%
	Yes	52%
	Could do more	13%
	I don't know	27%
Government	No	12%
	Yes	17%
	Could do more	35%
	I don't know	36%
NGOs	No	11%
	Yes	15%
	Could do more	58%
	I don't know	16%

8.4.3.4.5 Key findings

The evidence gathered in relation to the coherence of CFP with the provisions of the Nature Directives points to numerous problems related to CFP in the previous term (2007-2013), concerning the adoption of measures required for the management and protection of Natura 2000 areas (as described in the intervention logic, section 2.3 of the study). Those problems were mainly due to the lack of well-defined competences in fisheries management and inadvertently competing financial incentives under the EFF. The reformed CFP ensures a higher level of legal coherence with the Nature Directives, stressing the expectation of a sustainable approach to both fishing activities and aquaculture. In line with the judgement criteria, this study has assessed the coherence of the Nature Directives with the CFP at the level of objectives and implementation, identifying the following key findings:

- The Nature Directives' protection system in the marine environment requires the management of potentially harmful activities (e.g. overfishing and destructive fishing practices such as bottom trawling in sensitive areas), which affect important habitats like sandbanks or reefs.
- The current legal framework of the EU fisheries policy can be considered coherent with the Nature Directives, as the conservation of marine resources is specifically stated as a strategic objective in Article 2 of the 2013 CFP Regulation, and implemented through the new Article 11 and other legal provisions of the 2013 CFP Regulation. Specific guidelines and funding instruments on fisheries and nature protection are also in place.
- The division of competences regarding protection of marine biodiversity in the context of the CFP was, until recently, unclear with regard to Member States' powers (and procedures) to adopt conservation measures that might affect the fishing interests of other Member States. Prior to 2013, the exclusive competence of the EU in the field of fisheries conservation was an effective obstacle for the adoption of restrictions to harmful fishing activities. Article 11 of the 2013 CFP Regulation empowers Member States to adopt fisheries measures with conservation objectives, in order to integrate the requirements of the Nature Directives. It also clarifies the procedure and recognises the specific role of the Commission to coordinate the process where measures affect the interests of more than one Member State.

- Several stakeholders (eight out of 24) responding to the evidence gathering questionnaire with regard to fisheries, noted that the recent reform of the CFP has brought promising changes to the policy framework, although they acknowledge that more time is needed to confirm results.
- While the development of the Natura 2000 network in the marine environment has been slow, the designation process for marine protected areas is now seen as the major contribution of MPAs in the EU. This reinforces the process of setting up MPAs under the MSFD, as well as under other international agreements. According to a 2015 EEA report, and based on 2012 data, the Natura 2000 network constitutes over 4% of Europe's seas, compared to 5.9% of overall MPA coverage.
- The implementation of more sustainable fisheries management is essential to support the Nature Directives' objective of ensuring biodiversity and dealing with overfishing as a result of species depletion and destructive fishing practices. While the process of establishing conservation measures for marine Natura 2000 areas benefits from the lessons learned from the terrestrial Natura 2000 sites, implementation remains challenging, due to a lack of scientific data or harmonised approach across the Member States, as well as conflicts of interest between nature protection objectives and the fisheries sector. These challenges are more evident in cases where those measures are also required to cover areas that are not part of the Natura 2000 network, especially in cases where marine Natura 2000 sites are subject to external pressures such as dredging or fisheries. This has been reflected both in literature and in the evidence gathering questionnaires, highlighting the need for better harmonisation of conservation measures, including the preparation of management plans, which, in areas beyond territorial waters, involves international cooperation.
- Concerns were expressed in relation to the licensing procedures linked to AA of activities affecting Natura 2000 sites, which reflect national implementation issues. For example, stakeholders from the private sector in several Member States argued that it is almost impossible to get a permit for aquaculture activities, due to the interpretation of the requirements of Article 6(3) of the Habitats Directive and the application of the precautionary principle at a local level. Contrary views were expressed by other stakeholders, who stated that licensing of activities at local level caused damage to Natura 2000 sites, and expressed concern about the impacts of aquaculture in Natura 2000 sites.
- Expenditure under the EFF has had mixed success. Positive impacts included examples of limiting destructive fishing techniques and promoting eco-management in aquaculture. Some negative impacts were also reported, however, such as those directed at fleet renewal, which increased fishing capacity and its impact on biodiversity. The reformed measures under the EMEF address these deficiencies.

8.4.3.5 Forestry

8.4.3.5.1 Introduction and sources of information

This section covers coherence with the EU Forest Strategy and the associated Multi-annual Implementation Plan. As indicated in the 2015 State of Nature Report (EEA, 2015a), and as discussed under question R.1 (see section 7.1), forestry practices exert a pressure on EU protected habitats and species. The EU Forest Strategy aims to set a policy framework that coordinates and ensures coherence of forest-related policies at the EU level and allows synergies with other sectors that influence forest management. However, as the EU does not have competency in forest matters, it does not set any binding obligations or targets for Member States. Coherence with forestry support under the CAP has already been discussed in this question.

The analysis relies primarily on an examination of the policy texts and stakeholder responses to the evidence gathering questionnaire. Of the 26 respondents who commented on forestry policy issues, most of the comments referred to national forest policy, with only five referring to the EU Forest Strategy. Respondents did not supply any additional evidence relevant to the EU policy level beyond that contained in the policy documents.

8.4.3.5.2 Objectives and interactions

The EU Forest Strategy sets the 2020 forest objective to 'ensure and demonstrate that all forests in the EU are managed according to sustainable forest management principles and that the EU's contribution to promoting sustainable forest management and reducing deforestation at global level is strengthened'[577]. This integrates the balance of forest functions between meeting demands, providing a basis for a competitive and viable forest-based value chain, and delivering ecosystem services. The strategy defines strategic orientations for eight priority areas. Natura 2000 is mentioned under the priority 'protecting forests and enhancing ecosystem services', and calls on Member States to 'achieve a significant and measurable improvement in the conservation status of forest species and habitats by fully implementing EU nature legislation and ensuring that national forest plans contribute to the adequate management of the Natura 2000 network by 2020'. The Multi-annual Implementation Plan defines the main channels for achieving this as the Natura 2000 Biogeographical Process, RDP and river basin management planning, and the development of green infrastructure[578].

The Strategy recognises that forest-based biomass is expected to gain in market interest, and the Plan includes actions to explore possibilities to increase the growth and sustainable utilisation of forests and the use of forest biomass. However, the increased extraction of forest biomass from Natura 2000 sites and forests with EU protected forest habitats and species might, in some places, be incompatible with achieving the objectives of the Nature Directives (European Commission, 2015b). According to the Strategy, the Commission and Member States will 'explore and promote the use of wood as a sustainable, renewable, climate and environment-friendly raw material more fully without damaging the forests and their ecosystem services'. No details are specified. The impacts of bioenergy policy on implementation of the Nature Directives are discussed above.

8.4.3.5.3 Conclusions

The Forest Strategy can be considered to be, in principle, fully compatible with the achievement of the objectives of the Nature Directives. Each of the five respondents who referenced the EU Forest Strategy stated that it sets a clear supportive framework for the objectives of the Nature Directives. The Commission is committed to monitor Member States' progress with respect to the uptake of forest management plans or equivalent instruments, and their integration of biodiversity considerations, including Natura 2000 conservation objectives. The actual outcomes of sustainable forest management for Natura 2000 and EU protected forest habitats and species will depend to a large extent on implementation in Member States, as well as by the forest owners and managers, as discussed in section 5.2. No further information was available to answer this question.

[577] European Commission. 20/09/2013. A new EU Forest Strategy: for forests and the forest-based sector. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, European Commission, COM(2013) 659 final, 20/09/2013.
[578] European Commission. 2015. Multi-annual Implementation Plan of the new EU Forest Strategy. Commission Staff Working Document, European Commission, SWD(2015) 164 final, 2015d.

8.4.3.6 Non-energy extractive industries

8.4.3.6.1 Introduction and sources of information

The non-energy extractive industries (NEEI) provide many of the basic raw materials for manufacturing and construction industries. Mining and quarrying activities have the potential to impact habitats and species if improperly managed. At the same time, many potential mining and quarrying sites are located within, or close to, Natura 2000 sites, requiring careful and effective coordination with the implementation of the Nature Directives. The information base for this sector is mainly policy documents, the EU Guidance document on non-energy mineral extraction and Natura 2000, examples provided by industry, and the four relevant responses to the evidence gathering questionnaire, all from industry representatives (Cembureau, IMA Europe, UEPG and Euromines).

8.4.3.6.2 Objectives and interactions

The main goal of EU policy in relation to NEEI is to secure reliable and undistorted access to raw materials, which is an important factor for the EU's competitiveness. The three main groups of raw materials extracted by NEEI are 1) construction materials, such as sand, gravel and various types of crushed rocks (e.g. chalk, limestone, sandstone), natural rock materials (e.g. marble and granite), plus a range of clays, gypsum and shale; 2) industrial minerals (e.g. bentonite, calcium carbonates, kaolin, salt, potash and sulphur); and 3) metallic minerals (a wide range of ores which yield metals or metallic substances such as bauxite, chromium, copper, gold, silver, tin, tungsten etc.). While the EU is self-sufficient in construction materials, it remains a net importer of most industrial minerals and is highly dependent on imports of metallic minerals.

In November 2008, the Commission adopted a Raw Materials Initiative based on three pillars[579]:

- Ensuring access to raw materials from international markets at undistorted conditions (coordination of trade and policy dialogue with third partner countries at EU level, and irrelevant for coherence with the Nature Directives).
- Setting the right framework conditions within the EU to foster sustainable supply of raw materials from European sources (making the administrative conditions for mining and quarrying access more coherent across Europe, also streamlining the permitting process).
- Boosting resource efficiency and promoting recycling to reduce the EU's dependence on imports.

The Initiative, which was renewed in 2011, points out that the implementation of the Natura 2000 legislation is of particular relevance for the extractive industry. The document states that, during public consultations, industry raised concerns about the sometimes competing objectives of the Natura 2000 network and the development of extractive activities within the EU. In order to address these concerns, the Commission and Member States committed themselves to developing guidelines for industry and authorities in order to clarify how extraction activities in or near Natura 2000 sites can be reconciled with biodiversity protection. An extensive Guidance document was issued by the Commission in 2011 to clarify the provisions of Article 6 of the Habitats Directive in relation to NEEI activities[580]. The Guidance document was the result of a joint work between the Commission, most Member States, NGOs and the extractive industry.

[579] European Commission 2008. The raw materials initiative – meeting our critical needs for growth and jobs in Europe. Communication from the Commission to the European Parliament and the Council, SEC(2008) 2741, 4.11.2008.
[580] European Commission 2011, Guidance document Non-energy mineral extraction and Natura 2000, European Union 2011.

8.4.3.6.3 Impact on implementation of the Nature Directives

The extraction of minerals has an impact on the land upon which it takes place. Most mines and quarries require the removal of the surface soil and need space for storage mounds, as well as for associated infrastructure, including access roads. Such activities can, if inappropriately designed and operated, cause significant disturbance to wildlife and lead to the loss, fragmentation or deterioration of natural habitats. Indirect effects for habitats and species may be due to the alteration of existing hydrological or hydrogeological regimes, change in water quality or soil contamination, as well as noise and vibrations.

However, there are a growing number of examples where an extraction site has, over the course of its entire life cycle, delivered an overall net benefit for biodiversity due to rehabilitation activities. This is especially relevant when the extraction area is located in an impoverished environment. In such cases, the extraction industry can help to create new habitats for wildlife, for instance new wetland areas or new cliffs that provide good nesting opportunities for birds. Open quarries may provide suitable habitats for various insects and reptiles, while disused mine shafts may be colonised by bats. Studies carried out in France and Germany on extraction areas have shown that some protected species that have become rare in these countries find refuge in the new habitats offered by former extraction sites[581].

The Commission's Guidance document explains that the Nature Directives do not, *a priori*, exclude extractive activities from Natura 2000 sites, and it presents a step-by-step approach to applying Article 6 of the Habitats Directive. A separate chapter is devoted to the assessment of the impacts of extractive activities in marine areas. The document explains how the needs of extractive industry can be met while avoiding adverse effects on wildlife and nature at Natura 2000 sites. It also stresses the importance of strategic planning, Appropriate Assessment (AA) of new developments and the need for adequate mitigation measures, including the obligation for rehabilitation plans. These plans ensure that at the end of the life of the extractive activities, the mining site is returned to nature in the best possible biodiversity and natural conditions, compatible with a Natura 2000 zone. The guidelines contain many examples of best practice, and show how some extraction projects can ultimately be beneficial to biodiversity by providing high quality ecological niches. More examples of excavation sites which have been restored and now provide valuable habitats for biodiversity can be found on the UEPG website[582].

The Commission Guidance document is well-regarded by the stakeholders from the NEEI sector, although they stated that the guidelines are not always followed by authorities at Member State level. Clear rules relating to mineral policies in many Member States - including spatial planning rules and environmental assessment - are missing, already raised in a 2004 study commissioned by the European Commission (European Parliament, 2013). Each of the four industry representatives who addressed NEEI in the evidence gathering questionnaire referred to the overly restrictive application of the provisions of the Nature Directives by permitting authorities. According to them, despite the Commission Guidance document, companies are often faced with a blanket ban at local level due to a misinterpretation of the Directives and/or lack of knowledge. Provisions related to priority species can, in some Member States, be a serious obstacle to the realisation of any mining projects. There seems to be considerable uncertainty about the legal provisions of the Nature Directives, particularly Article 6, which leads to overly frequent lawsuits at national level. According to representatives of the Swedish mining sector, it is generally difficult to obtain mining permits in Sweden in situations where Natura 2000 sites have been designated in areas of mining potential. Finally, the industry also points out that a lack of sufficient scientific knowledge about species and the extent of potential impacts, results in excessively long permitting procedures, as investors are required to carry out the necessary research themselves.

[581] European Commission 2011, ibid.
[582] http://www.uepg.eu/key-uepg-topics/case-studies/biodiversity accessed 4.12.15

These opinions indicate that there is a need among Member State authorities for more widespread use of the Commission's guidance for the NEEI sector. While investors often see Natura 2000 sites as no-go areas for business development, this does not have to be the case, provided that the provisions of Article 6 of the Habitats Directive are followed and that the measures recommended in the Commission guidance are applied.

8.4.3.6.4 Key findings

- In summary, the evidence gathered suggests that while the NEEI sector has the potential to exert negative impacts on habitats and species, extraction activities can be reconciled with biodiversity protection provided the existing guidelines are implemented in practice. In fact, many examples of positive impact of the extraction activities such as the creation of new habitats for wildlife, can be given. Some stakeholders point out, however, that many regional and local authorities are overly restrictive and do not grant licences for extraction on non-energy raw materials even if these activities do not pose threats to biodiversity.The NEEI provide many of the basic raw materials for manufacturing and construction industries, making access to these materials very important for the competitiveness of these significant EU economic sectors. The extraction of minerals through mines and quarries has the potential, if inappropriately designed and operated, to cause damage to wildlife and habitats, including through indirect effects such as water and soil contamination.
- The 2008 EU Raw Materials Initiative, renewed in 2011, aims to secure reliable and undistorted access to raw materials in support of industrial competitiveness. The Initiative makes reference to improving the coherence of administrative conditions to ensure mining access across Europe, including streamlining permitting procedures. The Initiative also aims to boost resource efficiency and promote recycling to reduce the EU's consumption of primary raw materials.
- In response to the Raw Materials Initiative and calls from industry stakeholders, in 2011 the Commission issued a Guidance document clarifying how extraction activities in or near Natura 2000 sites can be reconciled with biodiversity protection. The document explains how the needs of extractive industry can be met, while avoiding adverse effects on wildlife and nature at Natura 2000 sites, stressing the importance of strategic planning, AA of new developments and the need for adequate mitigation measures.
- Nevertheless, in the evidence gathering questionnaires, four industry stakeholders referred to the overly restrictive application of the provisions of the Nature Directives by permitting authorities, which has led to a de facto ban on developments in the Natura 2000 protected areas. As there is no automatic exclusion of extractive and quarrying activities in and around Natura 2000 sites, stakeholders have called for better implementation of Nature Legislation at national, regional and local level, including dissemination and awareness of the Commission's guidance. This, they believe, would lead to a more balanced, proportional and sustainable approach to permitting of potential new mining and quarrying developments.

8.4.3.7 Research

8.4.3.7.1 Introduction and sources of information

Research is of critical importance for the objectives of the Nature Directives. Biodiversity and nature protection are rapidly evolving areas and sound scientific research is essential to keep up with new developments and ensure optimal management and conservation practices.

The information base for this section was limited, as only two stakeholders specifically addressed coherence of the EU policy on the research sector with the Nature Directives in their responses to questions C.4 and C.5. Relevant research policy documents and a few studies on this issue have also been included in the analysis. (see section 6.8 for a discussion of the impact of the knowledge base on the implementation of the Directives.)

8.4.3.7.2 Objectives and interactions

Both of the Nature Directives contain provisions referring to the need for research, encouraging Member States and the Commission to enable the necessary research and scientific work with regard to nature objectives. Article 18 of the Habitats Directive states that Member States and the Commission should encourage the necessary research and scientific work with regard to the objectives of the Habitats Directive set out in Article 2, and the obligation of Article 11 referring to surveillance of the conservation status. Article 10 of the Birds Directive states that Member States shall encourage research and any work required as a basis for the protection of all species of birds referred to in its Article 1, with special attention to the species listed in Annex V.

EU research policy is in line with the objectives of the Europe 2020 strategy focusing on smart, sustainable and inclusive growth. The 7th Framework Programme for Research (FP7) from 2007-2013 and the Horizon 2020 (The Framework Programme for Research and Innovation) for 2014-2020 are main initiatives of EU research policy, of which sustainable development has been an overarching objective. Under FP7, environment (including climate change) was a thematic area within the largest Specific Programme 'Co-operation', with over EUR 32bn allocation until 2020, out of a total of just over EUR 50bn[583584]. Within this, FP7 supported research on a broad range of biodiversity themes, including marine, forestry and freshwater. Research focused primarily on accessing and integrating information, understanding trade-offs and securing conservation measures[585].

For the current period, 60% of the total Horizon 2020 budget of almost EUR 80bn has been dedicated to sustainable development, including 35% for climate-related expenditures[586]. Horizon 2020 focuses on a set of so-called societal challenges, and, although biodiversity is not directly targeted among the challenges, two areas encompass both biodiversity and nature conservation, namely Societal Challenge 5: 'Climate action, environment, resource efficiency and raw materials', and Societal Challenge 2: 'Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy'.

The sustainable development objectives present in FP7 and which continue to be of crucial importance in Horizon 2020 create positive synergies for nature protection. The 2016-2017 Horizon 2020 Working Programme stresses the role of nature-based solutions for territorial resilience. Such solutions are intended to simultaneously improve economic, social and environmental resilience of rural and natural areas through, among other things, preservation and restoration of biodiversity[587]. These objectives show high-level coherence of the main EU research policy programme with the objectives of the Nature Directives. However, lack of a direct provision for the Nature Directives in EU research programmes both past and current may be seen as a drawback[588].

Nevertheless, both Horizon 2020 and FP7 have included dedicated calls targeting biodiversity. Many of the projects relate to 'aquatic biodiversity' in support of the WFD, 'cli-

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583 European Commission 2015, Seventh FP7 Monitoring Report, http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/7th_fp7_monitoring_report.pdf#view=fit&pagemode=none

584 European Commission Research&Innovation, FP7 in Brief, https://ec.europa.eu/research/fp7/understanding/fp7inbrief/what-is_en.html

585 European Commission 2012, EU Research Biodiversity, http://bookshop.europa.eu/en/biodiversity-pbKI0113553/

586 European Commission Factsheet: Horizon 2020 budget, http://ec.europa.eu/research/horizon2020/pdf/press/fact_sheet_on_horizon2020_budget.pdf

587 European Commission 2015. Horizon 2020 Work Programme 2016-2017. 12. Climate action, environment, resource efficiency and raw materials, European Commission Decision C (2015)6776 of 13 October 2015.

588 As specifically pointed out by the Irish NGOs in the evidence gathering questionnaire.

mate adaptation' and 'ecosystem services'. An assessment of the Natura 2000 co-financing arrangements of the EU financing instrument prepared in 2011 (Kettunen et al, 2011), pointed out that under the FP7, biodiversity research could receive funding under Theme 6 'Environment', covering sustainable management of resources and environmental technologies. The study could not establish how much financing was devoted to biodiversity research, and Natura 2000, in particular. However, given the relatively higher profile of other issues receiving funding through this channel, the authors assumed the share to be rather small. Similarly, the Commission's evaluation of FP7 could not distinguish amounts of funding specifically allocated to biodiversity[589].

Other EU financing opportunities, in addition to the research framework programmes, have been available for supporting biodiversity research. Among these are LIFE+ which includes support for research, and the European Innovation Partnerships (EIPs), which aim to speed up innovations that contribute to solving societal challenges. Two of the EIPs have direct relevance for biodiversity: EIP on Water and EIP on Agricultural Productivity and Sustainability[590][591]. Box 99 below gives an example of a project implemented within the latter initiative.

Box 103 EIP-AGRI focus group on organic farming

The EIP-AGRI Focus Group on organic farming brought together 20 experts with different backgrounds and experiences (scientists, farmers, advisers) to make recommendations on transferable innovative solutions for optimising production levels of organic systems and enhancing the performance of low-yielding organic farms.

The Group has issued a report identifying examples of good practices and innovative approaches to organic farming. One of the examples comes from Finland, where by-products from the pulp and paper industry are used in organic farming to manage carbon and nutrients in the soil. Adding slowly decomposable wood fibres to the soil has proven to help restore exhausted soils more easily and quickly, as well as adding water and nutrient-holding capacity in order to improve microbiological activity.

The report by the EIP-AGRI Focus Group on Organic Farming presents many more examples from various Member States, which can be applied on a wider scale across Europe.

Source: Press-article of EIP-AGRI, http://ec.europa.eu/eip/agriculture/sites/agri-eip/files/press-article-focus_group_on_organic_farming_-_en_0.pdf

The Biodiversity Information System for Europe (BISE)[592] contains a list of EU research projects on biodiversity and ecosystems.

The Polish NGOs stress the positive impact of the Nature Directives' requirements for research on the overall quality of biodiversity protection. The conservation programmes including adequate research are considered to be an effective means to fulfill the obligations of the Nature Directives. The Irish NGOs, however, point out the lack of direct provision for Natura 2000 through Horizon 2020, which they consider a significant gap.

Despite the financial support available for research on biodiversity, several sources, including stakeholders, point to gaps in knowledge, in particular marine biodiversity when compared to terrestrial habitats. For example, EEA (EEA, 2014c) indicated that the status of about 70% of marine species is unknown.

Popescu et al. (Popescu et al, 2014) concluded that the research conducted on Natura 2000 lacks a holistic vision that would integrate social and ecological systems, and recommends that future research should address trade-offs between economic targets, social desires and biodiversity conservation.

[589] European Commission 2015, Seventh FP7 Monitoring Report, http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/7th_fp7_monitoring_report.pdf#view=fit&pagemode=none
[590] http://ec.europa.eu/environment/water/innovationpartnership/, accessed 20.11.15
[591] http://ec.europa.eu/eip/agriculture/en/content/EIPAGRIabout, accessed 20.11.15
[592] http://biodiversity.europa.eu/research accessed 20.11.15

8.4.3.7.3 Results from the online public consultation

In line with the findings from literature and stakeholders, most of the respondents to the online public consultation were of the opinion that EU research policy could do more to support the objectives of the Nature Directives.

Table 40 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for research and innovation

Individual	No	<0.5%
	Yes	<0.5%
	Could do more	98%
	I don't know	1%
Business	No	17%
	Yes	10%
	Could do more	60%
	I don't know	13%
Government	No	9%
	Yes	17%
	Could do more	48%
	I don't know	26%
NGOs	No	7%
	Yes	9%
	Could do more	70%
	I don't know	14%

8.4.3.7.4 Key findings

EU research policy does not directly address the objectives of the Nature Directives. Nevertheless, funding opportunities have existed under FP7 and continue to exist under two Societal Challenges of the Horizon 2020 relating to sustainability and the environment. Sustainable development is established as an overarching objective of Horizon 2020, with dedicated funding of 60% of the total Horizon 2020 budget, including 35% for climate-related expenditures. In addition, the 2016-2017 Working Programme stresses the role of nature-based solutions for territorial resilience. Such solutions should simultaneously improve economic, social and environmental resilience of rural and natural areas through, among other things, preservation and restoration of biodiversity. These objectives show high-level coherence of the main EU research policy programme with the objectives of the Nature Directives. Furthermore, other EU financing opportunities exist, such as LIFE+ and innovation partnerships, which can be used to support biodiversity research.

8.4.3.8 Transport

8.4.3.8.1 Introduction and sources of information

Transport is a cornerstone of the EU integration process and is firmly linked to the creation and completion of the internal market, making it a key common policy area of the EU. As a policy area based mainly on infrastructure development, it has the potential to come into conflict with the objectives and implementation of the Nature Directives. While evidence shows considerable negative examples in practice, stakeholders also refer to improvements over time in the integration of nature and biodiversity concerns into strategic level planning and implementation in the transport sector.

This section draws on a combination of policy documents, literature and responses to both the evidence gathering questionnaire and the online public consultation. Responses directly addressing the transport sector were relatively limited, with nine stakeholders

responding to C.4 and eight to C.5, representing a mix of public environmental authorities and NGOs.

8.4.3.8.2 Objectives and interactions

The 2011 White Paper is the principal strategic document for the transport policy area in the EU[593]. It establishes a vision that integrates efficient mobility and accessibility objectives with resource efficiency and sustainability goals. The main goals of transport policy, according to this document, include creating a Single European Transport Area with increased mobility, creating favourable conditions for growth and jobs while at the same time improving sustainability and minimising negative environmental impacts. The White Paper sets an objective of reaching 60% reduction of GHG emissions from Transport by 2050 (compared with 1990). An impact assessment accompanying the White Paper refers to the Sustainable Development Strategy, according to which sustainable transport is 'to ensure that our transport systems meet society's economic, social and environmental needs whilst minimising their undesirable impacts on the economy, society and the environment'[594]. The related operational objective is to achieve sustainable levels of transport energy use and reduce GHG emissions from transport. Neither the White Paper nor its impact assessment contain direct references to the Nature Directives or the Natura 2000 network, but the focus on resource efficiency, sustainability and climate change mitigation creates potential synergies with nature objectives.

One of the objectives of the EU transport policy is creation of the Sustainable Single European Transport Area, through the Trans-European Network for Transport (TEN-T), which aims inter alia at decreasing GHG emissions, reducing external costs and maintaining environmental protection standards. The TEN-T Guidelines Regulation governs the implementation of this policy across the EU, including the identification of investments eligible for support from the CEF, which will provide over EUR 26bn to support the preparation and implementation of priority transport investments in the EU through 2020[595]. Further EU funding for the sector is available from Cohesion Policy and the EIB.

There is potential for conflict at the highest levels between transport and nature objectives. Implementation of the TEN-T policy will imply the construction and upgrading of significant amounts of road, rail, waterborne, port and other transport infrastructure that will frequently pose risks to habitats and species. The impact assessments for both the White Paper and the TEN-T Regulation refer to trade-offs between environmental objectives and socio-economic goals linked to transport infrastructure, and stress the pressure exerted on biodiversity and ecosystems. The impact assessment accompanying the TEN-T Regulation contains a section on land use and biodiversity impacts, which states that the greatest impact on environmental resources (other than climate) will be caused by an increase in land use for infrastructure, generating increased pressure on biodiversity and ecosystem services due to direct damage to habitats linked to construction works, habitat fragmentation and degradation and species disturbance[596]. The negative impacts from transport projects might result from physical reduction of natural habitats, landscape fragmentation, migration barriers, collision of vehicles with animals, emissions of noise and air pollutants, changes to the water regime and other indirect effects. A similar outline is presented in the impact assessment on the CEF Regulation[597] .

[593] European Commission, 2011. White Paper: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system COM(2011) 144 final, 28.3.2011.
[594] European Commission, 2011. Impact Assessment. Accompanying document to the White Paper: Roadmap to a Single European Transport Area – towards a competitive and resource efficient transport system, Commission Staff Working Document, SEC(2011) 358 final, 28.3.2011.
[595] Regulation (EU) No 1315/2013 of the European Parliament and of the Council, of 11 December 2013, on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU.
[596] European Commission, 2011. Impact Assessment accompanying the document Proposal for a Regulation of the European Parliament and of the Council on Union Guidelines for the development of the Trans-European Transport Network. COM(2011) 650 final, 19.10.2001.
[597] Commission staff working document accompanying the Regulation establishing the Connecting Europe Facility, Impact Assessment, COM(2011) 655 final, 19.10, 2011.

The policy framework can facilitate implementation of the investments such that they minimise, to the extent possible, the negative impacts of transport infrastructure on the environment. The preamble of the TEN-T Regulation states that environmental assessment in compliance with the Habitats, Water Framework, EIA and SEA Directives should be carried out by Member States and project promoters in order to mitigate or compensate for negative impacts on the environment[598]. These are recognised in the Regulation as 'landscape fragmentation, soil sealing and air and water pollution as well as noise, and to protect biodiversity effectively'. EU legislation also requires the development of SEAs for all plans and programmes likely to have significant environmental effects[599]. Transport is mentioned in the SEA Directive as one of the areas where SEA is required. Member States shall take the results of this environmental assessment into account in the preparation of the plans and programmes concerned. At individual project level, Member States are obliged to comply with EIA procedures and AA procedures for the Natura 2000 sites.

Article 8 of the CEF Regulation states that the eligible costs include the expenditures related to environmental studies on the protection of the environment and on compliance with the relevant Union law[600]. This means that the costs of environmental safeguards can be at least partly covered from EU funding, improving the quality of these assessments and contributing to decreased negative impacts on biodiversity. Major projects in the area of transport (with total eligible costs exceeding EUR 75m) can receive support in preparation of the assessments within the framework of the JASPERS initiative. Another soft policy measure which can help transport developers to apply appropriate environmental safeguards, are the Commission guidelines on Natura 2000 and development port development and dredging and inland waterways[601][602] .

8.4.3.8.3 Impact on implementation of the Nature Directives

EU transport policy aims, objectives and implementing measures (e.g. the TEN-T) pose a threat to nature and biodiversity, although environmental legislation requirements enable a coherent policy framework. Requirements to comply with EU environmental legislation - and specifically the EIA and Habitats Directives - are referenced in the relevant transport sector legislation and policy documents. Despite this, much of the evidence obtained from literature and stakeholders for this evaluation has pointed to negative examples, mainly cases where EIA and/or AA as required by the Habitats Directive, were not carried out effectively. In some cases, however, a trend towards improvement has been noted over time as transport sector policy-makers, planners and developers have gained experience in working in harmony with nature and biodiversity.

Evidence related to cases where transport infrastructure projects, including those financed by EU funds, threaten biodiversity and nature can be found in literature (Birdlife International et al, 2003), (EEA, 2009) and in stakeholder responses to the evidence gathering questionnaire. The specific examples below illustrate some of the problems that occur in practice when environmental procedures are improperly implemented.

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[598] Regulation (EU) No 1315/2013 of the European Parliament and of the Council, of 11 December 2013, on Union guidelines for the development of the Trans-European Transport Network and repealing Decision No 661/2010/EU.

[599] Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment.

[600] Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010 Text with EEA relevance.

[601] European Commission, *The implementation of the Birds and Habitats Directives in estuaries and coastal zones with particular attention to port development and dredging*, Guidance document http://ec.europa.eu/transport/modes/maritime/doc/guidance_doc.pdf

[602] European Commission 2012, *Guidance document on inland waterway transport and Natura 2000* http://ec.europa.eu/environment/nature/natura2000/management/docs/IWT_BHD_Guidelines.pdf

Box 104 Problems associated with improper implementation of environmental procedures

Jerez-Los Barrios Motorway, Spain
The plans for the Jerez — Los Barrios Motorway included almost 40km of a road running directly through Los Alcornocales Natural Park, the most important cork oak forest of the Iberian Peninsula and a Natura 2000 site. Environmentalists opposed the motorway, calling instead for the rehabilitation of a rail line and the improvement of the existing roads. After lengthy discussions, the Commission approved the project for Cohesion Policy funding in the period 2000-2006, following an agreement on extensive infrastructure correction and habitat restoration measures. Despite implementation of such corrective measures, environmental organisations state that the highway has covered about 500 ha with tarmac and that more than 10,000 trees have been cut down. The highway constitutes a physical barrier and the fauna crossways are not effective, being in different locations from those previously used by the animals.

Source: (EEA, 2009).

Egnatia motorway, Greece
The Egnatia motorway crosses through the habitat of the Brown Bear (*Ursus arctos*) in Greece. When the project's EIA was presented, it neither considered alternative alignments nor included mitigation measures that would prevent impacts on the Brown Bear's habitat. A LIFE project (LIFE93NAT/GR/001080) had been implemented at the time to study the impacts of the highway, demonstrating the conflicting priorities and inconsistent use of EU funds. NGOs appealed to the Council of State, which found deficiencies in the EIA. A new EIA had to be undertaken, delaying implementation of the project. While the new EIA did not alter the overall alignment, rerouting of a 37km crucial segment of the highway and several additional mitigation measures, particularly bear fencing on approximately 150 km of highway, were required in 2003. The motorway was completed in 2009. The Egnatia case offered important lessons on the need to properly and appropriate assess impacts of EU transport funded projects when protected habitats and/or species may be affected. Mitigation measures to reduce habitat fragmentation caused by the construction of E65 highway and high speed railway were also implemented in Central Greece.

Source: Questionnaire submitted by Greece NGOs.

Gabrovo bypass, Bulgaria
This planned highway development would allow a high-speed bypass of the town of Gabrovo, improving the Bulgarian link between Romania and Greece. Environmental NGOs in 2011 pointed out that the planned bypass cuts right through the Bulgarka Nature Park, protected under both the Birds and Habitats Directives. The bypass would consist of a high-speed road, as well as a tunnel under Shipka Mountain. Local activists and NGOs were quick to call attention to the fact that the tunnel only begins as the road exits the Natura 2000 area, thereby resulting in the park being effectively cut in two. In addition, the road passes through some of the best, wildest and non-fragmented habitat for Brown Bears in the park. The same NGOs have insisted that the AA consider two alternatives, consisting of either a longer tunnel which would reduce fragmentation and avoid surface construction in the park, or an alternative route through an existing mountain pass. Their petitions to Bulgarian courts were rejected on the basis that they did not provide sufficient factual proof that the development would hinder conservation objectives in the Natura 2000 site in question. The fact that the Gabrovo bypass was identified as an investment project of national significance led the courts to allow construction to carry on despite these objections by the NGOs[603].

Source: World Wide Fund for Nature (WWF), 2013, 'The construction of two major roads in Bulgaria and Romania ignores vital habitats', http://wwf.panda.org/?208865/The-construction-of-two-major-roads-in-Bulgaria-and-Romania-ignores-vital-habitats, accessed 4.12.15.

Rospuda highway, Poland
The Rospuda Valley in North-Eastern Poland has a unique character, containing a peat bog preserved in a model condition, virtually unchanged anthropogenically. The planned bypass of Augustów as part of the so-called Via Baltica (one of the segments of the TEN-T network) was supposed to cut through two areas of Natura 2000 established in this area: SPA 'Augustów Primeval Forest' and SAC 'Augustów Refugium'. The issue of the Augustów bypass has been disputed since 1997, when its construction through the Rospuda Valley was first designed. NGOs actively protested against the route cutting through this area. In 2007, the Commission referred the design of the bypass to the European Court of Justice (CJEU), arguing that the decision concerning the route had

[603] Ruling on a matter in the case No 6941 / year 2012 by the Fifth Section of the Supreme Administrative Court of Bulgaria.

breached Union law. As a result, in April 2007, the Voivodeship Administrative Court cancelled the decision of the Minister of Environment establishing the environmental conditions for approval of the implementation of the investment, which led to the repeal of the construction permit. In 2008, in order to solve the dispute, a Round Table was organised, including representatives of the government, self-government, civil engineers, scientists, ecologists and representatives of the residents of Augustów. The participants analysed the environmental impact of the three variants passing by the naturally valuable areas through the Rospuda Valley, conducting EIA for each variant. The route of the bypass through the village Raczki was found to be the least detrimental for the environment. Selection of this route was announced by the Polish government in March 2010, following which the complaint to the CJEU was withdrawn.

Source: Evidence gathering questionnaire submitted by Polish NGOs.

The literature and stakeholder responses provided a number of possible reasons for the lack of effective implementation of relevant environmental legislation for the transport sector. In some Member States the lack of SEA at the strategic planning level for the transport sector is seen as a key driver of conflicts. This was specifically cited in both France and Spain[604]. Spanish NGOs pointed out that in response to their complaints that that strategic plan for transport did not consider impacts on Natura 2000 sites, authorities argued that impacts should be considered for each specific project rather than at the strategic level, despite the fact that most of the programmes include a map with the main transport corridors or infrastructure projects where the interaction with the Natura 2000 network can easily be tracked. As a result, they cited the recent example of the highway between the cities of Toledo and Ciudad Real. The highway was designed to cross a Natura 2000 site (Montes de Toledo) despite the fact that an alternative route not affecting the protected area had also been proposed. The project was finally cancelled in 2015, following a decision by the High Court of Castilla-La Mancha[605].

EEA (EEA, 2009) refers to problems of fragmentation in the planning and implementation of individual transport projects. EIAs are carried out separately for small segments of highway and, in some cases, a low-impact segment receives development consent, while a subsequent segment that impacts a protected area is refused.

The EU level NGO World Wide Fund for Nature (WWF) also referred to the strategic level in transport planning in its response to the evidence gathering questionnaire. It noted that the nine TEN-T Corridor Studies produced in 2014 pay little attention to reducing conflicts with the Nature Directives. For example, the Rhine-Danube Core Network Corridor Study Final Report of December 2014 highlighted biodiversity issues only under inland waterway transport but not within the sections on road, rail and airport infrastructure. WWF also expressed concern about some of the priority projects listed in the TEN-T Guidelines and the Connecting Europe Facility (CEF) Regulations, which will require close monitoring to ensure implementation in harmony with the Nature Directives. They noted conflicts within the Danube-Bucharest Canal projects, in particular, based on shortcomings in the feasibility study and AA.

At the same time, the WWF also stated that, following completion of many transport projects which were destructive for nature, changes and safeguards have been introduced and it can be argued that environmental considerations are now well-reflected in the context of the legal basis offered by the TEN-T Regulation. Similarly, Croatian NGOs referred to helpful tools for transport planning and development that have been provided as part of implementation of the Nature Directives. These include a manual of good management practices for waterways, prepared with the help of the International Commission for the Danube River (ICPDR) and the Inland Waterways Agency, in order to improve cross-sectoral cooperation established through the Danube Forum. The Romanian Transportation Master Plan 2015-2030 provides another good example of this positive development towards better policy integration and commitments to support the objec-

[604] Expressed during the study visit to France and in the evidence gathering questionnaire from the Spanish NGOs.
[605] http://www.wwf.es/noticias/sala_de_prensa/?33620/Anulada-la-Autova-Toledo-Ciudad-Real-por-su-grave-afeccin-a-la-naturaleza-de-Montes-de-Toledo, accessed 7.12.15

tives of the Nature Directives while pursuing sustainable development[606]. Mitigating the negative effects of the Lugoj-Deva highway demonstrates specific investment in Romania, where, to protect the biodiversity capital of the region and avoid future claims for reparation of the Natura 2000 network, mitigation measures were agreed after a long process of negotiations with the planners of the motorway.

8.4.3.8.4 Results from the public online consultation

The potential for conflicts between EU transport policies and the objectives of the Nature Directives was recognised by many respondents to the online public consultation questionnaire – it received the highest proportion of 'no' answers of any of the sectors covered in this question, slightly ahead of energy. Even 53% of the respondents from the business sector provided a negative answer in the case of transport policy.

Table 41 Overview of responses to online public consultation Q10 'Do the EU policies in the following areas generally support the objectives of the Birds and Habitats Directives?' for Transport Policy

Individual	No	98%
	Yes	<0.5%
	Could do more	1%
	I don't know	1%
Business	No	53%
	Yes	19%
	Could do more	16%
	I don't know	12%
Government	No	42%
	Yes	5%
	Could do more	35%
	I don't know	18%
NGOs	No	58%
	Yes	4%
	Could do more	27%
	I don't know	11%

8.4.3.8.5 Key findings

In summary, implementation of the transport policy may imply threats to biodiversity due to ongoing and planned construction of transport infrastructure such as TEN-T. High-level transport strategies and legislation include provisions aimed at ensuring that adequate environmental safeguards are implemented in this sector. Evidence gathered shows that, in practice, some problems remain in the appropriate use of these safeguards to ensure biodiversity protection. On the other hand, examples of good practice in this area can also be quoted: in several cases, intervention of NGOs resulted in changing routes of some fragments of transport infrastructure and avoiding damage to habitats and species.

- EU transport sector goals are set out in the 2011 White paper and focus on increasing mobility, removing major barriers in key areas, and creating conditions for economic growth and jobs, as well as the integration of resource efficiency and sustainability goals. The latter are primarily focused on reducing dependence on foreign oil and cutting carbon emissions in transport by 60% by 2050. The TEN-T policy supports this through the designation of priority corridors for transport links and EUR 26bn is provided in support from the CEF for the preparation and construction of key infrastructure up to 2020.

[606] See: 'Romania Amends 2015-2030 Transport Plan to Protect Animals', 25 Feb. 2015. http://ens-newswire.com/2015/02/25/romania-amends-2015-2030-transport-plan-to-protect-animals, accessed 7.12.15

- There is potential for conflict at the highest levels between transport and nature objectives. Implementation of the TEN-T policy implies the construction and upgrading of significant amounts of road, rail, waterborne, port and other transport infrastructure that will frequently pose risks to protected habitats and species.
- The impact assessments for both the White paper and the TEN-T Regulation refer to trade-offs between environmental objectives and socio-economic goals linked to transport infrastructure, and stress the pressure exerted on biodiversity and ecosystems. The TEN-T impact assessment further refers to significant threats to biodiversity and Natura 2000 areas resulting from 'physical reduction of natural habitats, landscape fragmentation, migration barriers, collision of vehicles with animals, emissions of noise and air pollutants, changes to the water regime and others'. A similar outline is presented in the impact assessment on the CEF Regulation.
- There are provisions in place to ensure better compatibility of transport goals with environment and nature protection objectives during implementation. The preamble to the TEN-T Regulation states that Member States and project promoters, in order to mitigate or compensate for negative impacts on the environment, should carry out environmental assessment in compliance with the Habitats, Water Framework, EIA and SEA Directives. These are recognised in the Regulation as 'landscape fragmentation, soil sealing and air and water pollution as well as noise, and to protect biodiversity effectively'.
- Both literature and stakeholders provide mixed responses to the coherence between transport and nature policies in practice. For example, environmental NGOs point out that the long history of conflict between transport projects and nature has led to improvements in the way in which environmental considerations are now reflected in TEN-T policy. Transport planners increasingly see the importance of identifying impacts and agreeing mitigation measures in order to prevent legal and public challenges. The integration of nature concerns into strategic and spatial planning for the transport sector - brought about in part by requirements of the Nature Directives - has been seen to have a positive impact.
- Conflicts still exist, however. Several NGOs point to examples of transport infrastructure projects implemented with the use of EU funds, which threatened biodiversity and nature. AA required under the Habitats Directive is not always carried out at the strategic planning stage, as it may be considered to apply only at project level. Some stakeholders refer to shortcomings in the AA carried out for some major transport projects, resulting in the selection of transport routes which are less attractive with respect to habitats and species.

8.5 C.6 - To what extent do they support the EU internal market and the creation of a level playing field for economic operators?

8.5.1 Interpretation and approach

This question gathers and assesses evidence of the implications of the Nature Directives for economic operators, examining whether or not they affect the implementation of the internal market and therefore help to ensure a level playing field across the EU (e.g. by introducing common standards and requirements for activities carried out in or around Natura 2000 areas, or that otherwise depend on natural resources protected under the Directives). Key factors to consider include predictability and legal certainty for economic operators, regulatory burden and cross-border cohesion.

The development of a common market was one of the founding principles of the EU, and has remained a cornerstone of policy development even as the scope of decision-making has expanded. At the early stages of the EC/EU, although there was no formal authorisation within the Treaty of Rome for the EC/EU to act on environmental issues, there was nevertheless a recognition that differing environmental standards should not restrict competition (Klemmensen et al, 2007). While the reach of environmental legislation has extended, this principle remains. Despite this, the objectives of environmental policy and that of the internal market have sometimes been viewed as conflicting or even contradictory[607]. On the one hand, environmental standards are sometimes perceived as a barrier to economic growth, while on the other hand, open markets have been seen as a threat to the quality of the environment. However, the Single European Act also introduced a specific basis for environmental legislation, and laid down the principle that European environmental legislation should not prevent individual Member States from 'maintaining or introducing more stringent protective measures'.

Assessing the impact of the Directives on the internal market helps to address the key objective of taking socio-economic factors into account in nature conservation efforts. The internal market itself has had substantial socio-economic impacts, through the facilitation of the free movement of people, goods, services and capital, providing benefits to businesses in terms of larger markets and reduced regulatory barriers[608]. As such, the impact of the Directives on business operators in turn by providing a more certain regulatory framework for infrastructure developments and socio-economic activities, could impact the functioning of the internal market, with significant socio-economic consequences.

The key factor when it comes to ensuring coherence between nature conservation and internal market objectives, is the need to ensure that conservation activities are both necessary and proportionate and that they are implemented in ways which take socio-economic factors into account and avoid competitive distortions between Member States. Differences in the implementation of the nature conservation provisions between Member States may generate market distortions for economic operators, or introduce diverse requirements that hinder cross-border competition.

Breaking the Directives into their key specific objectives establishes three main components: 1) requirements concerning the designation of Natura 2000 sites (SCIs and SACs under the Habitats Directive or SPAs under the Birds Directive); 2) requirements concerning the management of sites, including the assessment of plans and projects and

[607] See, for example, European Commission 1999. Single Market and Environment. Communication from the Commission to the European Parliament and the Council, COM(99)263 final, 08.06.1999.
[608] European Commission 2015. Upgrading the Single Market: more opportunities for people and business. Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2015)550 final, 28.10.2015.

financing; and 3) requirements for the trade in, and protection of, particular species. Affected economic actors are those involved in activities in or near the Natura 2000 sites, or those using natural resources protected under EU nature legislation.

Given the variety of different responses to the evidence gathering questionnaire, it is important to clarify those aspects not dealt with by this question. Firstly, the question of whether or not the EU would have been better off without the Nature Directives, in comparison to the alternative patchwork of national legislation and standards, is more a question of effectiveness and EU added value. Likewise, consideration of the distributional impacts of the legislation – whether the legislation has a greater impact on the poorest in society for example - is outside the scope of the question. Additionally, the implications for EU competitiveness globally as a result of the Directives does not form part of this analysis. Finally, the focus of this question is on the impact of the Directives on the functioning of the internal market in terms of cross-border discrimination or the facilitation of cross-border activity, rather than the efficiency of markets more generally.

Against this backdrop and focusing on the consideration of internal market efficiency, two key judgement criteria have been used to answer the main question:

- The support or hindering of EU nature legislation for the EU internal market and level playing field
    - in terms of the proportionality and necessity of requirements.
    - in terms of whether the requirements discriminate against, or unfairly impact upon, particular operators in Member States.

For the first criterion, a key aspect is the size of the administrative burden imposed by the Directives, the principal concern of which is the impact of that burden and whether or not the functioning of the internal market has been distorted as a result. (see section 6.7 for a more detailed discussion on administrative burden.)

The second criterion examines whether or not economic operators are impacted differently in different Member States. It is important to emphasise that the Directives will necessarily impact economic activity in certain Member States and sectors more than others, based on geographical and market characteristics. A Member State with a large number of protected species or habitats will usually have correspondingly more management requirements or more restrictions on land-use management than a Member State with less protected species or habitats. Likewise, a Member State with a sizeable hunting sector may face a larger impact from restrictions on activities. A key component of this discussion is the level of implementation in Member States and whether or not the flexibility allowed has an impact on the level playing field intended by the legislation.

8.5.2 Main sources of evidence

There were three main sources of information for this question:

- Stakeholder responses to the evidence gathering questionnaire. Of the 82 responses that addressed this question, 64 came from Member State authorities, 17 from EU level organisations and one from a Commission DG.
- Literature reviewed, including Commission Guidance documents on Natura 2000 implementation, NGO reports on Natura 2000, EU commissioned studies on Natura 2000, industry guides, academic studies and a Member State consultation on the Habitats Directive. There were no specific studies focused on the internal market and the Nature Directives.
- Stakeholder responses gathered through meetings held during National Missions to France and the UK.

8.5.3 Analysis of the question according to available evidence

8.5.3.1 Administrative burden and the internal market

As discussed fully under the question on administrative burden (see section 6.7), the size of the burden in relation to the Directives is considered significant by some of the stakeholders concerned. A number of respondents – principally those representing economic operators, but also civil society – stated their concerns about the time and complexity of the processes that must be followed under the Nature Directives. However, stakeholders were divided as to whether or not the administrative burdens generated were excessive, given the scope of the objectives and benefits of the Directives. Although administrative burden could, in theory, affect the ability of economic actors to enter a market given additional start-up costs, there is no evidence from the available literature to support the view that market structure has been thus affected in practice.

In theory, the administrative burdens could have a greater impact on SMEs than larger firms, as they are generally seen to have a reduced capacity to understand and process requirements, face disproportionally higher compliance costs per employee, and the potential impacts on business flexibility affects one of their key strengths (OECD, 1997). Given that farmland makes up 40% of Natura 2000 terrestrial area, and that the majority of this is on more marginal farming areas (Olmeda et al, 2014), it is possible that smaller or economically weaker farming enterprises would be more than proportionally impacted by administrative burden in relation to site management. Indeed, the higher administrative burden facing operators within Natura 2000 sites is cited as one of the potential causes of conflict (Bouwma et al, 2010). Similarly, during the National Mission to the UK, stakeholders discussed. the higher impact of the Directives' implementation on SMEs in the context of the impact on other categories of business, such as housing/residential development, fisheries, energy/wind industry[609]. There was an acknowledgement, however, that the development of guidance and tools such as a Risk Matrix used to check hazards posed to Natura 2000 sites by permits, helps to reduce some of the impact of burdens[610]. The implication of a potentially larger impact on SMEs from administrative burden potentially impacts the functioning of the internal market if the average business size of affected actors is substantially different across Member States, or if the burden is such that it discourages cross-border competition at an SME level. However, no evidence was found to support this.

8.5.3.2 Differences across Member States

Although little has been written regarding discrepancies in implementation processes at Member State level, a report by the World Wide Fund for Nature (WWF) (2006b) highlighted that delays in designation of Natura sites have been encountered in nearly all Member States , primarily due to incomplete lists being submitted. Some newer Member States, such as Cyprus, Poland and Estonia were seen to have adjusted provisional SCIs (pSCIs) as a result of political pressure, rather than on the basis of a scientific rationale. Examples included the number of sites in Cyprus identified by their 1998-2001 LIFE Third Countries Project being reduced from 28% to 14% of the territory, and the halving of Polish land area identified as pSCIs from 18% to 9% (WWF, 2005). However, the report by Ecosystems (2013) found that delays in site designation were generally the result of poor understanding of requirements and a lack of sufficient skills to apply procedures, rather than an end in themselves.

[609] UK private sector stakeholders.
[610] Meeting on 1-2 June 2015 in London.

The stakeholder responses to the evidence gathering questionnaire were split on the question of whether or not the Directives had led to a levelling of the playing field in this domain for economic operators across the EU. A large number of respondents, particularly NGOs but also Member State representatives, felt that the equal standards for conservation applied as a result of the Directives were vital for the functioning of the internal market. The introduction of a minimum level of protection for the environment meant that a potential 'race to the bottom' in environmental protection had been avoided. This was particularly highlighted as a potential issue in newer Member States. This point was emphasised during the Conference presenting the emerging findings from the Nature Directives evaluation[611]. Some of the same respondents, as well as others from the tourism and construction industries, also felt that the Directives had provided some level of assurance and predictability to business, supporting trans-boundary activity and encouraging investment. One respondent highlighted the role the Habitats Directive had had in unifying Austrian regulations on the environment, which had previously been complex and based on different federal legislation, enabling the business environment within a single Member State. These responses are supported by the findings from a Defra UK consultation on a review of the balance of competences in relation to environmental policy at the national and EU level (HM Government, 2014a).

Overall, the criticisms of the Directives in relation to the internal market addressed the variety of implementation approaches in the Member States, which could undermine the level playing field afforded to economic actors. Indeed, some actors, most notably economic operators, propose further harmonisation of certain provisions of the Directive[612]. One respondent from industry stated that the processes for protecting species in different sectors vary, while another from a Member State authority stated that different Member States have different technical rules in place ('threshold for significance'), which can have an impact on the development of cross-border projects. One comment refers to the greater 'adjustment' challenge – in relative terms – facing new Member States compared with 'old' Member States who may have had high standards in place at the time they transposed the Directives and hence had less to do. Some industry respondents to the evidence gathering questionnaire felt that while some Member States had been pragmatic in allowing economic activities in Natura 2000 sites, others had used Natura 2000 site designation to place blanket restrictions on development, in particular in relation to the extractive industries and forestry, and that biodiversity considerations were prioritised over other valid considerations. There is little specific evidence from the literature to support or undermine these claims across the EU – other than individual cases - but the UK Habitats review (2012) found little evidence of planning applications for development in the UK being rejected on the grounds of the legislation, despite industry concerns. Across the EU, data on the number of projects rejected following Appropriate Assessment (AA) seems to verify this finding (see Box 13). Some members of an expert stakeholder focus group highlighted the different requirements for the forestry and agriculture sector, noting, in particular, the differences in financial support from the EU available to the different sectors, but it is unclear if this issue is more prevalent in certain Member States than others[613].This financing issue is further discussed under section 8.6.

Going beyond the requirements set out in the Directives is explicitly permitted under certain conditions by Article 193 of the Treaty of the Functioning of the European Union (TFEU), which declares that the protective measures adopted pursuant to Article 192 (environment policy) as the legal basis, 'shall not prevent any Member State from maintaining or introducing more stringent protective measures. Such measures must be compatible with the Treaties and notified to the Commission'. Further, Article 14 of the Birds Directive also explicitly states that Member States have the power to go beyond the EU environmental legislation[614]. While the Treaties establish a solid basis for Member States to exercise their discretionary power to go beyond EU environmental legislation (Client Earth, 2015c), they require that the national measures are compatible with the Treaties,

[611] Held on 23 October 2015 in Brussels.
[612] Meeting on the 19-20 May 2015 in Paris.
[613] Meeting on the 19-20 May 2015 in Paris.
[614] Article 14 states: Member States may introduce stricter protective measures than those provided for under this Directive.

in particular the internal market rules. Nonetheless, the Commission raises questions regarding the desirability of so-called 'gold-plating' in its Communication on 'Better regulation for better results – An EU agenda' as part of its Better Regulation Package[615]. Their concerns arise from the fact that while more stringent protection measures have the potential to enhance the benefits from the implementation of the Directives and facilitate the achievement of their objectives, they can also add unnecessary costs for businesses and public authorities. The issue of gold-plating was not explicitly referred to by stakeholder responses to the evidence gathering questionnaire. However, this issue was addressed by a 2010 academic paper, which examined alleged gold-plating of UK rules to implement the Habitats Directive in the area of new port developments (Morris, 2011). The paper assessed whether or not the UK went beyond what was necessary to implement the Directive, compared to other jurisdictions with important ports, such as France and Germany. The paper concluded that there is evidence that the UK was faster than other 'competitor' Member States at transposing the Directive, but does not state that the UK went further than these countries. Likewise, the author notes that a delay in transposing the Directive may not be due to any attempt by a government to gain a competitive advantage through delays, and that late transposition can take place for different reasons, including complaints from stakeholders. There is little other evidence available regarding either the issue of gold-plating and the Nature Directives or related inefficiencies.

In summary, while many respondents appear to agree that the Nature Directives are helpful in establishing a level playing field for all operators in the EU, there is a difference of opinion as to whether or not they satisfactorily reach this objective, given the margin of discretion for Member States on their implementation, and the resulting potential for different approaches in each Member State.

8.5.4 Key findings

- In general, the research and consultation activities did not reveal any strong evidence to suggest that the Nature Directives have caused disruptions or distortions to the functioning of the EU internal market. Some stakeholders have cited examples of cases where the Directives have had unequal impacts on different sectors of economic activity, or have suggested that the administrative burden limits economic competitiveness, but the incidence of such responses is relatively low. Conversely, many stakeholders felt that the introduction of a common standard for designation and management of protected areas and approaches to conservation of key habitats and species, has created an enabling environment for business through the creation of a more level playing field between Member States.
- Some stakeholders raised concerns about the implications for SMEs of the administrative burden related to the Directives, but provided only limited details to support this concern. SMEs are generally assumed to be more affected by administrative burden due to their overall capacities, therefore it could be expected that the implications of the Directives would impact them more severely, at least where significant obligations arise. An example of this would be on more marginal farming land, on which 40% of Natura 2000 sites are situated. More dedicated research would be required to substantiate this finding and determine if the overall administrative burden from the Directives leads to any significant internal market distortions, e.g. by discouraging SMEs from operating across borders.
- The evidence gathering questionnaires showed that many stakeholders, particularly those from civil society, but also from Member State authorities, found the introduction of a common approach through the Nature Directives vital for the functioning of the internal market more generally, removing the potential for a 'race to the bottom' in environmental protection standards, and giving businesses

[615] http://ec.europa.eu/smart-regulation/better_regulation/key_docs_en.htm

a level of certainty that would otherwise not have been available. For these stakeholders, the Directives facilitated the internal market by providing a level playing field.

- However, some industry representatives felt that the requirements placed on certain sectors, such as mining and forestry, were more onerous than for others, such as agriculture, and that the financial support afforded to different sectors was unequal. More research would be needed to assess if this is indeed an issue, and whether or not there are internal market issues associated with varying requirements imposed on the same sector across Member States. Some respondents from industry bodies representing the extractive industry, forestry, and agriculture, as well as from Member State authorities, held the view that different implementation approaches for the same requirements across Member States have undermined the value of the Directives in providing a level playing field.

8.6 C.7 - To what extent has the legal obligation of EU co-financing for Natura 2000 under Article 8 of the Habitats Directive been successfully integrated into the use of the main sectoral funds?

8.6.1 Interpretation and approach

This builds on the assessment in section 6.2, examining in further detail Member States' compliance with their EU co-funding obligations. It assesses the success of the legal obligation, set out in Article 8 of the Habitats Directive, whereby Member States are eligible for co-funding from the EU budget to contribute to the financing of measures considered necessary to meet obligations under the Directive[616].

Two judgement criteria have been used in the analysis of these questions:

- The integration of the legal obligation of EU co-financing into the use of the main sectoral funds.
- The extent to which required funds are secured through Prioritised Action Frameworks (PAFs).

Most EU co-funding for the Natura 2000 network has been made available by integrating biodiversity goals into the key existing EU funds or instruments (the so-called integrated approach) (Kettunen et al, 2014a)[617]. These instruments include the European Agricultural Fund for Rural Development (EAFRD), European (Maritime and) Fisheries Fund (EFF/EMFF), Structural and Cohesion funds (ERDF, ESF and CF) and the Framework Programme for research and innovation (Horizon 2020). In addition, the European financial instrument for the environment (LIFE) provides funding dedicated to the implementation of EU environmental policy objectives, including the Nature Directives. The evidence for the level of integration of conservation objectives into the different EU sectoral funds was also examined. In addition, the question also looks at the information to-date on the effectiveness of the PAFs set up for the new funding period of 2014-2020, and examines their success in identifying funding requirements and securing matching resources[618].

The assessment examines the extent to which conservation objectives of the Directives feature in the regulatory frameworks for different EU funds, as well as evidence of the integration of these conservation objectives into the national and regional programmes implementing the EU funds. (see section 6.2 for an assessment of the uptake of EU co-funding).

8.6.2 Main sources of evidence

The evidence available consisted of:

- A number of EU level assessments of the level of integration of conservation objectives into EU funds, based on the analysis of official – and best available - data from EU level and/or all Member States. These include, for example, the

[616] The main responsibility for implementing the Nature Directives, including securing sufficient funding, lies with the Member States. However, as per Article 8 of the Habitats Directive, the implementation of the Directives can also be supported by EU funding.
[617] COM(2004)431 and SEC(2011)1573.
[618] Article 8 of the Habitats Directive foresees that the Commission shall adopt a PAF of measures involving co-financing. The purpose of PAFs is to establish a national or regional strategy for protection and management of Natura 2000 within the context of the relevant EU financial instruments.

assessment of the uptake of EU funding for biodiversity during the 2007-2013 period and assessment of the integration of Natura 2000 and wider biodiversity objectives into EU funds in 2014-2020.

- European Court of Auditor reports on integration of biodiversity into key funds (e.g. ERDF).
- EU funding regulations / instruments (e.g. CAP, Cohesion Policy funds, European Maritime and Fisheries Fund, LIFE) (2007-2013 and 2014-2020); Member States' fund-specific programmes (Operational Programmes (OPs) and Rural Development Programmes (RDPs)) (2007-2013 and 2014-2020).
- Member States' PAFs (2014-2020).
- Stakeholders' responses to the evidence gathering questionnaire and online public consultation. In addition to C.7 responses, information was also provided under sections 5.3 and 6.2, the former concerning the main factors that have contributed to or hindered progress towards achieving the Directives' objectives, and the latter exploring availability and access to funding as a constraint or support to the Directives.
- Individual examples - identified by stakeholders and/or supported by documented case studies - of the identified funding constraints and their effects on implementation and achievement of objectives of the Directives.

It is important to note that the integration of funding needs stemming specifically from the Habitats Directive (i.e. related to the management of the Natura 2000 network and/or species and habitats of Community interest) into EU funds overlaps with the integration of broader biodiversity objectives into the funds. Thus, in the existing studies and assessments these two aspects are often assessed jointly without making an explicit distinction between the two.

8.6.3 Analysis of the question according to available evidence

8.6.3.1 EU studies

A dedicated Communication from the Commission in 2004 outlined how the financial needs of Natura 2000 could be integrated into the different EU sectoral funds during the period of 2007 – 2013 and the measures that could be financed by the different funds[619]. The purpose was to ensure that the management of Natura 2000 sites would be part of the wider land management policies of the EU, while at the same time avoiding duplication and overlap of different funding instruments. While focused on Natura 2000, in practice the integration approach applies to the wider EU biodiversity goals, including those of the Nature Directives.

The integration approach to co-funding has been retained for the 2014-2020 period, with the coordination between different EU instruments further improved by the establishment of a set of common rules and principles for ERDF, ESF and the Cohesion Fund, EAFRD and EMFF, including 12 common thematic objectives linked to the Europe 2020 Strategy[620][621]. Thematic objective 6 is explicitly linked to environmental protection, addressing the support to be provided for 'preserving and protecting the environment and promoting resource efficiency (including through investment in Natura 2000)'.

[619] COM(2004)431.
[620] SEC(2011)1573.
[621] These rules are laid down in the Common Provisions Regulation (CPR) and set out by the 'Common Strategic Framework' (CSF) (Regulation (EU) No 1303/2013).

The handbooks for financing Natura 2000 during the periods of 2007-2013 and 2014-2020 provide a thorough assessment of the integration of biodiversity objectives into the EU sectoral funds (European Commission, 2007d; Kettunen et al, 2014a; Kettunen et al, 2014b). They clearly show that the legal obligation of providing opportunities for financial support to biodiversity conservation as part of the EU sectoral funds has been taken up across various funds (see Table 42 below). Individual sectoral funds include an explicit reference to financing Natura 2000 and biodiversity as a possible area of funding. The only exception to the rule is ESF, which provides support to broader social and economic cohesion, although it may have possible indirect links to Natura 2000 management. A range of documents (e.g. case studies, guidance on good practice) exist, demonstrating that integration of Natura 2000 and/or biodiversity into different sectoral funds is also possible across Member States in practice (ENEA-MA, 2013; IEEP and Milieu, 2013; Kettunen et al, 2012; Kettunen et al, 2014b).

The EU co-funding to support research and innovation (7th Framework Programme in 2007-2013 and Horizon 2020 in 2014-2020) is based on a specific programme that sets out objectives and rules for the implementation of the fund. This general programme is implemented through biennial Work Programmes established for dedicated themes. The concrete project opportunities, including possible elements focusing on and/or relevant to managing the Natura 2000 network, are defined by theme-specific calls from the Commission and must, in order to be eligible, constitute research on management activities on Natura 2000 sites. A wide range of Natura 2000 measures have been, and continue to be, funded, mainly related to the development and testing of new management approaches and/or evaluation of the past Natura 2000 management regime (see Box 105 below).

Box 105 Examples of EU research framework projects supporting implementation of the Natura 2000 network and/or wider objectives of the Nature Directives

The EUMON project focused on assessing and improving monitoring methods and systems of surveillance for species and habitats of Community interest[622]. This included reviewing available methods and approaches to monitoring abundance and trends in species and habitats of Community interest, as well as designing methods that would allow for evaluation and improvement of the contribution of Natura 2000 and other conservation activities to the achievement of biodiversity targets.

The SCALES project explored how the knowledge of different scales relevant to biodiversity conservation could be better integrated into conservation strategies and management actions[623]. Connecting protected areas, including Natura 2000 sites, with wider landscape management played an integral role in the project.

The MACIS project explored the minimisation of, and adaptation to, climate change impacts on biodiversity[624]. The requirements of protected area management, including Natura 2000 sites, were one of the focal areas of the project.

The OPERAS and OpenNESS projects focus on supporting the uptake of ecosystem service knowledge in practice[625]. They are built on extensive cooperation, using practical examples and case studies, several of which come from Natura 2000 sites.

In the context of the EU budget, the decisions on allocating EU funds between different possible priorities, including biodiversity, rest predominantly with the Member States (see section 6.2 for further discussion). No EU level assessment has comprehensively and systematically assessed the integration of biodiversity and Natura 2000 into OPs and RDPs across the EU, e.g. making comparisons between Member States and/or between funds. However, existing information – both from studies (e.g. (European Court of Auditors,

[622] http://eumon.ckff.si accessed 17.02.16
[623] http://www.scales-project.net/ accessed 17.02.16
[624] http://macis-project.net/index.html accessed 17.02.16
[625] http://www.operas-project.eu and http://www.openness-project.eu/ accessed 17.02.16

2011a; European Court of Auditors, 2014a; Kettunen et al, 2011) and the evidence gathering questionnaires - indicate that there has been inadequate integration of biodiversity conservation priorities in most of the national and/or regional OPs and RDPs, particularly when it comes to providing a dedicated earmarked budget for biodiversity measures within the funds. This lack of integration is, to a large extent, caused by competition with other policy goals, such as support to economic activities and infrastructure (see also section 6.2). For example, the analysis of 46 ERDF OPs in 10 Member States for the period 2007-2013 showed that while biodiversity was included as an objective in 86% of the assessed OPs, only 63% of them had a clear budget for biodiversity measures expressed by the specific code (INTERREG IVC SURF Nature project, 2011). Similarly, the assessment by the European Court of Justice (CJEU) concluded that during the 2007-2013 funding period, 12 Member States (45%) allocated less than 0.2% of their cohesion resources to measures directly dedicated to biodiversity (European Court of Auditors, 2014a).

An assessment of 18 2014-2020 RDPs across 16 Member States and regions indicates that there is also some cause for concern during the current funding period (N2K Group, 2016)[626]. The 18 RDPs analysed either include specific measures for Natura 2000 sites and/or species and habitats of Community interest, or contain broader measures relevant in supporting the management of the network and/or habitats and species. However, the planned measures do not often seem to cover all the needs identified by PAFs, for example the authors identified a gap in measures available to support forest conservation. The analysed ERDF / CF / ESF OPs (around 50 national and regional OPs) were, in principle, adequate for a range of needs identified by PAFs (e.g. capacity building for management of the network, monitoring of conservation status of habitats and species, restoration of freshwater habitats). However, the measures are not always explicitly linked to the Natura 2000 sites or habitats of Community interest. As regards the ESF, the level of integration into the analysed OPs was very limited, with the exception of a few examples of support allocated to capacity building for management of the Natura 2000 network, or to innovative actions to restore the natural environment and preserve of biodiversity.

The indicators and targets included in the analysed RDPs and OPs are in general insufficient to allow for proper monitoring and evaluation of results and outcomes in relation to Natura 2000 and/or the conservation status of habitats and species of Community interest. Most of the relevant targets are linked to performance indicators (number of plans, surface covered by certain measures, etc.) and do not assess the actual effects of the measures in relation to conservation status.

Finally, as with the 2007-2013 funding period, the analysed programmes predominantly lacked dedicated earmarked budgets for biodiversity measures. Hence, it is not possible to determine the foreseen overall amount of funding, or to compare the funding allocations with the funding needs identified in some of the PAFs.

The assessment concluded that the integration of Natura 2000 and wider biodiversity objectives varied among the national/regional programmes and the complementary use of the different funds to deliver PAFs does not seem to have been exploited to its full potential.

[626] Aragon (Spain), Bulgaria, Burgundy (France), Cyprus, England (UK), Estonia, Finland (mainland), Greece, Mecklenburg-Vorpommern (Germany), Poland, Portugal (mainland), Romania, Sardinia, Slovakia, Slovenia, Sweden.

Table 42 Integration of biodiversity and Natura 2000 into EU sectoral funding priorities during the 2014-2020 funding period (Kettunen et al, 2014a)

EU funding instrument	Examples of key opportunities for financing biodiversity conservation
EAFRD	Article 17(1)(d): Non-productive investments linked to the achievement of agri-environment-climate objectives, including biodiversity conservation status of species and habitats, as well as enhancing the public amenity value of a Natura 2000 area or other high nature value (HNV) systems to be defined in the programme. Article 20(1)(a): Drawing up and updating development plans including protection and management plans relating to Natura 2000 sites and other areas of HNV. Article 28: Support granted annually per hectare under multi-year contracts to farmers, or groups of farmers, for agricultural practices that make a positive contribution to the environment and climate, including in Natura 2000.
EMFF	Article 40(1)(d): Preparation, including studies, drawing-up, monitoring and updating of protection and management plans for fishery-related activities relating to Natura 2000 sites and spatial protected areas under the MSFD and relating to other special habitats. Article 40(1)(e): Management, restoration and monitoring of Natura 2000 sites. Article 40(1)(h): Schemes for compensation for damage to catches caused by mammals and birds protected by the Habitats and Birds Directives. Article 44(6)(a): Management, restoration and monitoring of Natura 2000 sites which are affected by fishing activities […]. Article 54(1)(a): Aquaculture methods compatible with specific environmental needs and subject to specific management requirements resulting from the designation of Natura 2000 areas.
ERDF	Article 5(6)(d): Protecting and restoring biodiversity and soil and promoting ecosystem services, including through Natura 2000, and Green infrastructure.
Cohesion fund	Article 4(c)(iii): Protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including through Natura 2000 and Green infrastructure.

8.6.3.2 National studies

No national studies have been identified that systematically analyse the level of integration of biodiversity into different EU funds at national level by assessing the opportunities provided by biodiversity and Natura 2000 across different OPs. However, the existing case evidence across individual funds (see Table 19) indicates that – despite a number of positive examples - the overall uptake of biodiversity-related opportunities in the context of national and regional programmes (OPs and RDPs) is not achieving its potential. The case evidence also shows that, even after a successful integration at the level of OPs and RDPs, uptake of funds can be hindered by factors such as high administrative burden or ineffective scheme design (see Table 19).

Only some Member States have made attempts to quantify the overall gap in financing for biodiversity which is partly caused by the limited success in integrating biodiversity into EU sectoral funds. In Germany, the funding gap for financing biodiversity conservation can be estimated at EUR 1.96bn per year (Hampicke, 2013; Rühs and Wüstemann, 2015). In Spain, the difference between the estimated current investment in the Natura 2000 network and the desired level of spending indicates a funding gap of around EUR 0.6bn annually (Moreno et al, 2013) (see section 6.2 for more detailed information). Giv-

en the key role of EU co-financing for biodiversity in the EU (see section 6.2), the gap in overall financing indirectly indicates that the integration of biodiversity into different EU funds has much room for improvement.

The coordination between different funds has been identified as one of the challenges for the successful integration of biodiversity into EU funds at national level. During the 2007-2013 funding period none of the Member States or regions adopted a coordinated programmatic approach to Natura 2000 financing, defining priorities, allocations through different funds, role divisions and monitoring (Kettunen et al, 2011). This caused lack of clarity about the actual financing needs and how these should be met. The authorities responsible for Natura 2000 management and biodiversity conservation were, in many cases, not those making the decisions on allocation and spending under different sectoral funds, and, frequently, they were not a partner in planning and implementation decisions. It was concluded that the lack of coherence, and absence of a certain level of obligatory coordination, placed Natura 2000 financing in a position of very considerable dependence on political goodwill in different sectors, making it vulnerable to both intentional and inadvertent under-allocation.

8.6.3.3 Responses to the evidence gathering questionnaire and National Missions

71 responses to this question were received in the evidence gathering questionnaires. The majority of these responses (61) provided opinions on the current level of sectoral integration, often supported by qualitative evidence or examples (47). Some respondents (21) also provided quantitative evidence. In general, the stakeholder responses indicated that while the EU level framework provided a range of opportunities for financing the Nature Directives, the overall level of funding was considered inadequate, with considerable challenges in maximising the available opportunities when implementing the funds at national and regional level.

In terms of different sectoral funds, the responses highlighted the important role of EAFRD as a key sectoral fund supporting the implementation of the Nature Directives in most Member States. However, examples exist of both successful and unsuccessful integration of biodiversity into the funding priorities at national level (see Table 43 below). In addition to EAFRD, ERDF has played an important role in contributing to the overall funding available, especially in many of the Central and Eastern European Member States (see Table 43 below). There is a limited take-up of funds under the ESF, EFF (2007-2013) and EMFF (2014-2020). However, both stakeholders and documented case examples (IEEP et al, 2016; Kettunen et al, 2014b) provide a number of examples of successful individual projects addressing biodiversity concerns under these two funds, indicating that better integration is possible when supported by priority setting at a national level. The results of EU level assessments (see above) and examples of individual case examples support these overall conclusions (IEEP and Milieu, 2013; Kettunen et al, 2012; Kettunen et al, 2014b).

There are some indications that, for the 2014-2020 funding period, financing biodiversity under different EU funds might be limited by overall funding cuts (see Box 29) or other requirements, such as the need to concentrate ERDF on key thematic objectives other than biodiversity[627].

The coordination between different funds has been identified as a core challenge in successfully implementing the EU integrated co-funding approach (see national studies above). While it is too early to assess the overall performance of PAFs, some Member States stated that, when well prepared and given political impetus, PAFs can make a positive contribution towards securing the integration of biodiversity funding at a national

[627] Support from the ERDF will be concentrated on certain key thematic objectives (Research and Innovation, ICT, SMEs and promoting a low carbon economy). The allocations to these priorities vary between different EU regions, ranging from 80% to 50% of the total ERDF resources to be allocated to the above priorities. (Council Regulation (EU) No 1299/2013).

level, in addition to wider Natura 2000 funding needs (e.g. Estonia, Belgium (Flanders) and Bulgaria). However, the responses also indicated that the development of PAFs missed some opportunities in some Member States. For example, some PAFs were considered to be either too ambitious (therefore unrealistic) or inadequate in terms of their commitment or level of detail. In some cases, PAFs were criticised for the lack of stakeholder consultation during their development. For example, Finland, Spain and Italy all pointed to such missed opportunities in the development of PAFs. In some cases, PAFs were developed too late to have an impact on the planning and allocation of different sectoral funds.

The key constraints identified for integrating Natura 2000 into the EU co-financing framework, in particular in the national and regional context, are described in section 6.2.

Table 43 Examples of good and failed practices in integration, identified by evidence gathering questionnaires and National Missions

Country	EU fund	Description of good practice
EU level	All funds	The European Network of Environmental Authorities-Managing Authorities (ENEA-MA) is a voluntary initiative of DG Environment and Member State environmental authorities, expanded to include programme Managing Authorities, aiming to improve the integration of environment and sustainable development within the Cohesion Policy programmes and projects. It provides a platform for exchanging ideas and sharing best practice between Member States. In March 2013, the Network issued a position paper on the integration of biodiversity and Natura 2000 in Partnership Agreements and Operational Programmes 2014-2020. The paper contains a comprehensive list of funding opportunities to support biodiversity and related interventions, including the five European Structural and Investment Funds, Horizon 2020 and LIFE (ENEA-MA, 2013).
Austria	EAFRD	During the EU funding period 2007-2013, Austria implemented the EAFRD measure M323a (Conservation and improvement of rural heritage in the field of nature protection). 1,026 projects were implemented through this measure, with a total funding of EUR 75m. Of the projects funded, 54% concerned a Natura 2000 area, 29% concerned habitats and species covered by Annex I of the Directive 79/409/EEC, and 11% concerned habitats covered by the Annexes I and II of the Directive 92/43/EEC. Each of the projects funded through M323a has indirectly contributed to the conservation of habitats and species. 26% of the projects were designed as a contribution to the development of specific biotopes and habitats, and required the purchase of land. These constitute a base for the conservation or upgrading of ecologically valuable habitats, or the resettlement of rare or endangered species or species of Community interest. (Pinterits et al, 2014).
Bulgaria	ERDF	During the EU funding period 2007–2013, the funding available under Axis 3 (Biodiversity) of the Environment Operational Programme (EOP) was over EUR 103m[628]. According to the national NGOs, this level of funding for biodiversity was rather unprecedented and it was sufficient to address specific objectives under the Directive (e.g. ensure protection and management of SCIs and SACs). The funds also enabled the implementation of large-scale projects for the mapping and assessment of the conservation status of the Habitats Directive habitat types and species. These results were then used by the Ministry of Environment in order to provide data for the six-year monitoring under the Habitats Directive (Article 17).
Czech Republic	ERDF	During the EU funding period 2007-2013, ERDF contribution to the implementation of the Nature Directives amounted to about EUR 29m under the Operational Programme Environment (OPE) (Priority Axis 6: Improvement of state of nature and landscape: area of intervention 6.1: implementation and management of Natura 2000 sites). This area of intervention especially focused on supporting Natura 2000 sites. The measures supported have included, for example, monitoring of sites and the status of the populations of plant and animal species. According to the state's nature authority, access to funds was facilitated by the high co-funding rate (for Area of Intervention 6.1 to 95% of eligible costs). On the other hand, the high administrative burden (e.g. labour-intensive preparation of proposals and project administration) has been identified as a challenge in using the fund.
Hungary	EAFRD	The EAFRD Rural Development Programme for 2014-2020 provides two separate measures for compensation: Natura 2000 grassland sites and Natura 2000 forests. The beneficiaries are farmers and state organisations engaged in farming activities and private forest-holders. According to the state's nature authority, these two compensation payments directly affect the implementation of Natura 2000 objectives, encouraging beneficiaries to comply with the regulations, while being paid for the loss of potential profit. Both the nature authorities and NGOs consider the administrative burden for these payments to be limited, and this encourages the uptake of these measures, particularly for forestry.
Poland	ERDF / CF	During the 2007-2013 funding period, EUR 90m was dedicated especially to nature conservation under Axis V of the Operational

[628] http://ope.moew.government.bg/files/useruploads/files/ope_text_eng-2.pdf

Country	EU fund	Description of good practice
		Programme Infrastructure and Environment. According to an available assessment, these funds were well managed and properly integrated nature conservation objectives. The goal of this Axis was to reduce the degradation of the natural environment, halt biodiversity loss and raise public ecological awareness. Priority was given to the Natura 2000 areas. The projects co-financed from this Axis were coordinated by the 'Centre for the Coordination of Environmental Projects'. The application procedure was transparent, with clear biodiversity-related criteria, preference lists and extensive use of independent experts. Some examples of funded projects include: the rehabilitation and protection of the Baltic mammals in Poland, focusing on grey seals and porpoises (approximately EUR 1.5m budget), continuation of raised bog conservation in Pomerania (approximately EUR 300,000), halting artificial peatbog drainage, and dry grasslands conservation in Malopolska region (EUR 750,000)[629].
The UK / North Wales	EFF	Project FishMapMôn was a collaborative pilot project between Natural Resources Wales (NRW), recreational fishers and commercial fishers in North Wales carried out in 2012-2013. The aim of the project was to develop a fisheries management guidance tool for the Anglesey marine area, which would contribute to delivering an ecosystem based approach to realising the Welsh Sustainable Fisheries Strategy. European Fisheries Fund (EFF) and government funds were used to finance activities such as staffing costs, publicity and training and stakeholder engagement (Kettunen et al, 2014b).
Country	**EU fund**	**Description of missed opportunities for integration**
Spain	EAFRD	According to the national NGOs, the regions have no standard system for monitoring the dedication of funds to Natura 2000 (beyond the compulsory breakdown for certain measures) or for evaluating their contribution to the conservation of the Natura 2000 network. Some measures considered to contribute to Natura 2000 have no clear benefit for the conservation of Natura 2000 sites. For example, the agri-environment measure from the 2007-2013 period for 'integrated production' of olives was counted by the responsible ministry as a contribution to Natura 2000 funding. In reality, this action had no biodiversity objectives nor any objectives related to the conservation of species or habitats. This measure was focused on minimising the use of chemical fertilisers and pesticides, but, in many cases, involved very few changes in the normal management of farms, so its benefits for Natura 2000 were unclear. Similarly, the positive contribution of the aid to less favoured areas (LFA) for the maintenance of agriculture favourable for conservation, is considered to have been overestimated, as no management requirements were included and the amounts offered were so small that they may not be sufficient to avoid abandonment. The above failures are attributed to the lack of a standard system for monitoring biodiversity related funding to the conservation of the Natura 2000 network.
Latvia	EAFRD	Latvia has one biodiversity related agri-environmental measure ('Preservation of biodiversity in grasslands'). According to NGOs, during 2007-2013 only 15% of the RDP funding for the agri-environmental measures was directed to biodiversity. During the 2014-2020 period, this level of support will be reduced: from approximately EUR 123 per ha (2007-2013) to EUR 55 per ha (2015), with approximately 35,000 ha of HNV grasslands being affected. The NGOs consider this to be insufficiently attractive to generate uptake from farmers.
Poland	ERDF	The success in Axis V of the country-wide Infrastructure and Environment Programme (described above in this table), was shadowed by the lack of support to biodiversity under the other OPs. Theoretically, each of the 16 OPs included biodiversity funding opportunities. In practice, however, these funds were often spent on activities which were only remotely connected with nature protection. For example, in Lower Silesia, under Priority IV 'Environment and Ecological Safety', the approved projects focused on rebuilding educative routes for tourists or centres for environmental education, with very indirect benefits to habitats and species conservation. In the Lubuskie region, the projects financed under Priority III 'Conservation and management of

[629] http://www.ceeweb.org/work-areas/working-groups/natura-2000/resources/cases/ accessed 17.02.16

Country	EU fund	Description of good practice
		environmental resources' included expansion and modernisation of sewage treatment plants and sewage systems, rebuilding fire brigade stations and buying fire brigade trucks, insulation of buildings, building a solar and wind energy plant [630].
Czech Republic	EFF	According to the nature authority, in the OP for Fisheries no measure focusing on Natura 2000 areas was implemented, despite the Ministry of Environment's proposal. One key reason was the low total financial allocations for this programme, resulting in competing priorities.

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[630] http://www.ceeweb.org/work-areas/working-groups/natura-2000/resources/cases/

8.6.3.4 Results from the online public consultation

The results of the online public consultation indicate that only a minority of the respondents considered the Directives to have made no contribution at all to improving the funding for nature conservation over and above what could have been achieved through national or regional legislation (see responses to Q31 below). However, the majority considered this contribution to be minor rather than major or significant. This response corresponds to the insights gained in section 6.2, reflecting the overall consensus on the lack of financing for implementing the Directives.

Table 44 Results of Q31 of the online public consultation questionnaire

Q31: To what extent have the EU Birds and Habitats Directives helped to improve the following, over and above what could have been achieved through national or regional legislation?

	No contribution	Minor contribution	Moderate contribution	Significant Contribution
Funding for nature conservation	8%	49%	14%	25%
Integration of nature conservation into other policies	9%	51%	16%	21%

8.6.4 Key findings

The available evidence indicates that the legal obligation of co-financing for Natura 2000 (as per Article 8 of the Habitats Directive) under the main EU sectoral funds has not been successfully achieved and the uptake of biodiversity related opportunities in the context of national and regional programmes has not made a sufficient contribution to the Directives' funding requirements. While good examples addressing biodiversity concerns under different EU funds exist (e.g. individual programmes and projects), the overall uptake of biodiversity related funding opportunities in the context of national and regional programmes does not match the breath of opportunities made available at the EU level, nor does it correspond with all the needs identified by PAFs.

- Assessments of the 2007-2013 and 2014-2020 periods show that there are a range of EU funding opportunities for financing biodiversity and Natura 2000 across different instruments. However, only the LIFE programme provides support to biodiversity and Natura 2000 as a primary objective, while all other EU funding instruments target a variety of EU goals on rural, regional, infrastructural, social and scientific development, for which biodiversity benefits are incidental.
- The analysis of the 2007-2013 funding period indicated a significant shortfall in the uptake of financing opportunities provided by different funds (see section 6.2). The failure to successfully integrate co-funding requirements into the use of the EU sectoral funds at the national and regional level are considered to be one of the key underlying factors in explaining the relative lack of funding for the implementation of the Directives. The level of successful integration in practice is predominantly hindered by national level priority setting (i.e. competition with broader sectoral priorities and overriding policy goals, such as support to economic activities and infrastructure) and establishing links with broader sector-specific goals of different EU funds.

- As for the 2014-2020 funding period, the assessment of (a sample of) national and regional programmes yields similar overall conclusions. The integration of Natura 2000 and wider biodiversity objectives varies among the national and regional programmes, and the complementary use of the different funds to deliver PAFs does not seem to have been exploited to its full potential.
- Stakeholder responses highlighted the important role of EAFRD as a key sectoral fund in supporting the implementation of the Nature Directives in most Member States. However, examples exist where biodiversity was successfully integrated into funding priorities at national level, as well as instances where it was not integrated. ERDF also plays an important role in contributing to the overall funding available, especially in many of the Central and Eastern European Member States. There is a limited uptake of funds under the ESF, EFF (2007-2013) and EMFF (2014-2020), although examples exist of successful individual projects addressing biodiversity concerns under these funds, indicating that integration is possible when supported by such priority setting at national level. In the existing assessments, the coordination between different funds has been identified as one of the challenges in successfully implementing the EU integrated co-funding approach. While it is too early to assess the overall performance of PAFs, the stakeholder responses indicate that when well prepared and given political impetus they can make a real, positive contribution towards securing the integration of biodiversity funding at a national level, as well as wider Natura 2000 funding needs (see section 6.2). Reports from Member States suggest that the development of PAFs missed opportunities in certain Member States, with some PAFs considered either too ambitious, or insufficiently ambitious, and likely to fail in practice. In some instances, PAF development has been undertaken too late, or with only limited consultation with stakeholders.

8.7 C.8 - Are there overlaps, gaps and/or inconsistencies that significantly hamper the achievements of the objectives?

Interpretation and approach of this question has been integrated in the analysis of most of the other coherence questions, in particular C.1 (see section 8.1), C.2 (see section 8.2), C.3 (see section 8.3), C.4 and 5 (see section 8.4), C.7 (see section 8.6) and C.10 (see section 8.9). As described in each of those questions' interpretation and approach, the judgement criteria and indicators used to assess the coherence of the Nature Directives between themselves, with other EU Environmental law and policies, with other EU sectoral policies or funds or with other International Agreements are related to the identification and analysis of any overlaps, gaps or inconsistencies which are relevant enough to affect the achievement of the objectives of the Nature Directives. Most stakeholders did not respond to this question and those who did, referred to previous questions or repeated certain elements of the information already provided.

8.8 C.9 - How do the Directives complement the other actions and targets of the biodiversity strategy to reach the EU biodiversity objectives?

8.8.1 Interpretation and approach

The complementarity of actions and targets between the Nature Directives and the biodiversity strategy to reach EU biodiversity objectives is used as the main judgement criterion. This analysis therefore examines evidence of the ways in which the objectives and provisions of the Nature Directives complement those actions and targets of the EU Biodiversity Strategy that do not explicitly refer to the Birds and Habitats Directives (i.e. Targets 2 – 6). The coherence of Target 1 of the EU Biodiversity Strategy with the Nature Directives is assessed by question S.2 (see section 5.2), which discusses the effectiveness of the Directives in achieving the EU biodiversity strategy objectives. While question S.2 (see section 5.2) considers the extent to which the outcomes of implementation of the Directives are contributing to achieving the objectives and targets of the Biodiversity Strategy, this question examines how the Nature Directives complement biodiversity goals, focusing mainly on the stated objectives and intent of the legislation compared to the targets of the strategy.

8.8.2 Main sources of evidence

The text of the legislation constituted the first source of information to assess coherence with the aims, targets and actions of the EU Biodiversity Strategy. This information was complemented by EU reports, such as the mid-term review of the EU Biodiversity Strategy (European Commission, 2015a), the reports under the Mapping and Assessing of Ecosystem Services (MAES) initiative (Maes et al, 2014; Maes et al, 2015), the Strategy for Green Infrastructure (European Commission, 2013c), and other national studies and reports.

The evidence gathering questionnaires provided another important source of information. Of 112 questionnaires, 58 provided a response to question C.9. The majority of responses (41 out of 58) were given in relation to Target 2 of the EU Biodiversity Strategy, with Target 3 addressed by 16 respondents, Target 4 by 19 respondents, Target 5 by 10 respondents, and Target 6 by nine respondents.

About half of the responses were from environmental NGOs from 26 Member States, with five EU level environmental NGOs also responding. The majority of the environmental NGOs expressed the same opinion. The nature protection authorities from 18 Member States provided a response to this question, as did other authorities from four Member States (marine-related authorities from Cyprus and Ireland, and the forest authorities from France and Romania). Five responses were received from the private sector, from associations related to forestry, fisheries and cement.

8.8.3 Analysis of the question according to available evidence

8.8.3.1 Requirements of the EU Biodiversity Strategy

The EU Biodiversity Strategy aims to 'halt the loss of biodiversity and ecosystem services in the EU and help stop global biodiversity loss by 2020'. The strategy includes six Targets and 20 actions. The Targets are:

- Target 1: Full implementation of the Birds and Habitats Directive (see question S.2 for discussion of Target 1).
- Target 2: Maintain and restore ecosystems and their services.
- Target 3: Achieve more sustainable agriculture and forestry.
- Target 4: Make fishing more sustainable and seas healthier.
- Target 5: Combat Invasive Alien Species (IAS).
- Target 6: Help stop the loss of global biodiversity.

8.8.3.2 Coherence of the Nature Directives with the headline target of the EU Biodiversity Strategy

The Directives are an important instrument in achieving the headline target of the Strategy to 'halt the loss of biodiversity and ecosystem services in the EU and help stop global biodiversity loss by 2020'. The full implementation of the Nature Directives, however, would be insufficient to achieve the objectives of the Strategy. Generally, the scope of the Biodiversity Strategy is broader than that of the Nature Directives.

- The Strategy follows a more holistic, ecosystem-based approach, while the Directives are focused on protected species and habitats.
- The Strategy has set a deadline to achieve its objectives (2020), while no timing is set under the Directives to achieve Favourable Conservation Status (or similar).
- The Strategy aims to engage with other sectors that have an impact on biodiversity, thereby reducing the pressures leading to a decline or loss of biodiversity. The sectors that are particularly addressed in the Strategy are agriculture and forestry (under Target 3) and fisheries (under Target 4).
- The Strategy aims to halt the loss of biodiversity in both protected and non-protected areas. It thereby strengthens the provision of the Nature Directives to take action outside of the protected areas.
- The Strategy also aims to help stop global biodiversity loss, while the Directives focus on the EU.

One exception to scope is the area of hunting activity, which is explicitly addressed by the Nature Directives but not directly covered by the Biodiversity Strategy.

The following sections address the coherence of the Nature Directives with Targets 2 – 6 of the Biodiversity Strategy in more detail, looking chiefly at scope and approaches. For Target 2, the analysis also considers specific actions, given the relative importance of ecosystems and Green infrastructure for successful implementation of the Nature Directives.

8.8.3.3 Coherence of the Nature Directives with Target 2 of the EU Biodiversity Strategy

Target 2 of the EU Biodiversity Strategy states that, by 2020, ecosystems and their services are maintained and enhanced by establishing Green infrastructure and restoring at least 15% of degraded ecosystems. Target 2 is broken down into three actions, Actions 5-7 of the Strategy:

- Action 5: Improve the knowledge of ecosystems and their services in the EU.
- Action 6: Set priorities to restore and promote the use of Green infrastructure.
- Action 7: Ensure no net loss of biodiversity and ecosystem services.

Action 5 of the Strategy aims to map and assess the state of ecosystems and their services. While the Action 5 knowledge base will include the data collected under the Directives on the status of protected species and habitats, it will go beyond this to map and assess ecosystems and their services as a whole, inside and outside the Natura 2000 network. The Millennium Ecosystem Assessment (Millennium Ecosystem Assessment, 2005) defines ecosystem services as the benefits that people obtain from ecosystems, e.g. goods such as timber, food, clean water, and services such as flood protection and recreation. Even though the exact relationship between biodiversity and each individual ecosystem service varies, the in-depth report of Science for Environment Policy (UWE, 2015) argues that the long-term flow of all ecosystem services will require high levels of biodiversity. The latter also conclude that protecting ecosystem services will also protect biodiversity. While the provision of ecosystem services is not limited to Natura 2000 sites, (Kettunen et al, 2009a) and (Bastian, 2013) found that Natura 2000 sites are important suppliers of ecosystem services, within and outside their boundaries.

The assessment of ecosystems and their services, as intended under Target 5, requires a new analytical framework. This has been developed under the MAES initiative (Mapping and Assessment of Ecosystems and their Services) (Maes et al, 2014) and is currently being tested in several EU wide research projects, such as OpenNESS, OPERAs and ESMERALDA. A concrete output is the MAES digital atlas of ecosystem types and ecosystem services[631]. An example at regional level is the 'description of the state and trends of ecosystems and their services in Flanders' (Demolder et al, 2015) and the associated atlas of ecosystem services for Flanders [632].

One challenge in the development of the knowledge base under Target 5 is the availability of various databases which cannot easily be integrated, causing an administrative burden and inefficiencies relating to duplicating data, on the one hand, and basing conclusions only on part of the available data, on the other. Databases include data that has been collected on the conservation status under Article 12 of the Birds Directive and under Article 17 of the Habitats Directive. In addition, habitat maps have been developed under the EUNIS habitat classification and under EMODnet (i.e. the EUSeaMap project[633]) The 2nd MAES report suggests that the status of birds can be used for the mapping and assessment of ecosystems, while the linkages between the species and habitats covered by the Habitats Directive and the 11 ecosystem types recognised under the MAES process are now being developed. The aim of the MAES initiative to have a unified knowledge base on the state of ecosystems may be a tool to coordinate the implementation of the Nature Directives and the EU Biodiversity Strategy.

Action 6, on the setting of priorities to restore and promote the use of Green infrastructure, is coherent with the Directives, both in terms of the restoration of habitats and the

[631] http://biodiversity.europa.eu/maes/maes-digital-atlas, accessed 16.12.15.
[632] https://www.inbo.be/nl/publicatie/flanders-regional-ecosystem-assessment-state-and-trends-ecosystems-and-thei
[633] http://www.emodnet-seabedhabitats.eu/default.aspx?page=1934, accessed 17.02.16

promotion of Green infrastructure. For restoration of habitats, Article 3 of the Birds Directive requires Member States to take measures to preserve, maintain or re-establish the ecological needs of habitats inside and outside of the protected zones. Article 3(3) and Article 10 of the Habitats Directive enable Member States to improve the ecological coherence of the Natura 2000 network by maintaining, and, where appropriate developing, features of the landscape important for species of fauna and flora such as ecological corridors or stepping stones. The stakeholders agreed that restoration is covered under the Directives but differed in terms of the priorities for restoration. While the majority of stakeholders refer to the restoration of degraded ecosystems within the Natura 2000 network, the nature authorities of three Member States (Finland, the Netherlands and Malta) give priority to the restoration of species and habitats outside the Natura 2000 network. Restoration both within and outside of the Natura 2000 network is coherent with the Directives.

Green infrastructure is defined and described in the EU Green Infrastructure Strategy (European Commission, 2013c) as 'a strategically planned network of high quality natural and semi-natural areas with other environmental features, which is designed and managed to deliver a wide range of ecosystem services and protect biodiversity in both rural and urban settings.' As described in the EU brochure on Green infrastructure (European Commission, 2013d), Natura 2000 lies at the very core of Europe's Green infrastructure. At the same time, Green infrastructure beyond protected areas will also help to strengthen the connectivity of the Natura 2000 network by making the core areas more resilient, providing buffers against impacts on the sites, and offering practical real-life examples of how healthy protected ecosystems can provide multiple socio-economic benefits to people as well as to nature. Stakeholders shared the latter opinion and agreed that the promotion of Green infrastructure would improve the connectivity between Natura 2000 sites, with stakeholders providing examples of the National Ecological Network (NEN) in the Netherlands, the 'green and blue infrastructure network' in France, and a regional network of green corridors developed in Spain which has been further developed by some regions (i.e. the Plan for the improvement of the ecological connectivity in Andalucía and the Network of ecological corridors of the Basque Country).

Action 7 aims to avoid a net loss of biodiversity and ecosystem services. This means that damage resulting from human activities must be balanced by at least equivalent gains. Action 7 is consistent with the provision under the Directives on compensatory measures for projects of over-riding public interest affecting the integrity of Natura 2000 sites, but also goes beyond this by addressing biodiversity and ecosystem services, both within and outside the Natura 2000 network.

8.8.3.4 Coherence of the Nature Directives with Targets 3 and 4 of the EU Biodiversity Strategy

Under Targets 3 and 4, the EU Biodiversity Strategy states that efforts to integrate biodiversity into the development and implementation of other EU policies have so far been insufficient. The Strategy therefore seeks to improve integration in key sectors, specifically through targets and actions to enhance the positive contribution of the agriculture and forestry (Target 3) and fisheries (Target 4) sectors to biodiversity conservation and sustainable use.

The Strategy thus aims to engage with these three sectors – and their policy instruments –to reduce the pressures resulting in a decline or loss of biodiversity. Under the Directives, pressures such as those originating from other sectors need to be reduced if the pressure inhibits the achievement of a Favourable Conservation Status. The Strategy aims for a positive contribution from the agriculture, forest and fisheries sectors within and outside the Natura 2000 sites. Targets 3 and 4 of the Strategy, although more far-reaching, are coherent with the Directives.

Stakeholders raised the lack of ambition in the actual implementation of the tools provided under EU policies on agriculture, forestry and fisheries (See the sections on agriculture, forestry and fisheries in questions S.2 (see section 5.2) and C.4/C.5 (see sections 8.4).

8.8.3.5 Coherence of the Nature Directives with Target 5 of the EU Biodiversity Strategy

Target 5 of the Strategy to combat Invasive Alien Species (IAS) is consistent with Article 11 (Birds Directive) and Article 22b (Habitats Directive). The stakeholders (four nature authorities and two NGOs) who directly addressed the coherence of Target 5 and the Nature Directives, stressed the importance of the eradication of IAS for achieving a Favourable Conservation Status. In addition, the Luxembourg nature authority also highlighted the opposite case, in which it is harder for IAS to spread and proliferate in well-managed Natura 2000 sites.

The efforts to combat IAS by the Directives and the Strategy are further supported by a new Regulation on invasive alien species[634]. The Regulation seeks to address the problem of IAS in a comprehensive manner, so as to protect native biodiversity and ecosystem services, as well as to minimise and mitigate the human health and economic impacts of such species.

8.8.3.6 Coherence of the Nature Directives with Target 6 of the EU Biodiversity Strategy

The Directives do not have a provision to avert global biodiversity loss (Target 6). Some stakeholders (four environmental NGOs and five Member State nature authorities) stated that the Directives have, nevertheless, inspired non-EU countries to protect biodiversity, e.g. by the establishment of the Emerald network and the African-Eurasian Migratory Water Bird Agreement, thereby indirectly complementing the implementation of Target 6 (see section 8.9 for more detail).

8.8.4 Key findings

- The Nature Directives are an important instrument in the achievement of the headline target of the EU Biodiversity Strategy to 'halt the loss of biodiversity and ecosystem services in the EU and help stop global biodiversity loss by 2020'. The full implementation of the Nature Directives, however, is insufficient to achieve the objectives of the Strategy. While the Directives focus on a list of protected habitats and species and on the management of the Natura 2000 network, the Strategy has a broader scope, and takes a more comprehensive approach to protect or restore biodiversity and ecosystem services, inside and outside the Natura 2000 network.
- The Strategy has set a deadline to achieve its objectives (2020), while no timing is set under the Directives to achieve Favourable Conservation Status (or similar).
- Target 2 of the EU Biodiversity Strategy, to establish Green infrastructure and restore at least 15% of degraded ecosystems, is coherent with the Nature Directives through the provisions to restore habitats and species that do not have Favourable Conservation Status (or similar for the Birds Directive). The priorities for restoration differ amongst stakeholders: the majority prioritise the restoration of degraded ecosystems within the Natura 2000 network, while some give priority to the restoration of species and habitats outside the Natura 2000 network.

[634] Regulation (EU) No 1143/2014; entered into force on 1 January 2015.

Restoration both within and outside the Natura 2000 network is coherent with the Directives.

- The Strategy's 'no net loss initiative of biodiversity and ecosystem services' is coherent with the provision on compensatory measures for projects of over-riding public interest affecting the integrity of Natura 2000 sites. The no net loss initiative, however, is broader, addressing habitats, species and sites both within and outside the Natura 2000 network.
- The Strategy aims to engage with other sectors that have an impact on biodiversity, thereby reducing the pressures that result in a decline or loss of biodiversity. The sectors particularly addressed in the Strategy are agriculture and forestry (under Target 3) and fisheries (under Target 4). The coherence of implementation with the policies of the other sectors depends primarily on the effective use of the tools provided (see section 5.1).
- Target 5 to combat IAS is coherent with the provision under the Nature Directives to limit the intentional introduction of alien species. Target 5 is also supported by the new Regulation on Invasive Alien Species.
- The Strategy goes beyond the territory of the EU and aims to increase the EU contribution to averting global biodiversity loss (Target 6). While the Directives do not contain such an expansive provision, they have, nevertheless, inspired non-EU countries to protect biodiversity, e.g. by the establishment of the Emerald network and the African-Eurasian Migratory Water Bird Agreement, thereby indirectly complementing the implementation of Target 6.

8.9 C.10 - How coherent are the Directives with international and global commitments on nature and biodiversity?

8.9.1 Interpretation and approach

This question assesses the extent to which the Nature Directives ensure the implementation of obligations arising from international agreements on nature and biodiversity to which the EU and/or Member States are party.

The 17 agreements identified as relevant for this question are listed in Table 45 below.

Table 45 International agreements on nature and biodiversity to which the EU and/or Member States are party.

Agreement	EU party	Member States party N/A when EU is a party
Bern Convention	Yes	N/A
Convention on Biological Diversity (CBD)	Yes	N/A
Convention on the Protection of the World Cultural and Natural Heritage	No	Yes
Ramsar Convention	No	Yes
European Landscape Convention	No	Yes (apart from Austria, Denmark, Germany and Malta)
CITES Convention	Yes	N/A
(CMS) Bonn Convention - AEWA - EUROBATS - ASCOBANS - ACCOBAMS - Agreement on the Conservation of Seals in the Wadden Sea	Yes - Yes - No - No - No - No	N/A - N/A - Yes (except Austria, Greece, Spain) - Regional significance (Belgium, Denmark, Finland, France, Germany, Lithuania, Netherlands, Poland, Sweden, UK) - Regional significance (Bulgaria, Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Romania, Slovenia and Spain) - Regional significance (Denmark, Germany, Netherlands)
International Convention for the Protection of Birds	No	No (except Belgium, Italy, Luxemburg, Netherlands, Spain, Sweden)
OSPAR	Yes	N/A
HELCOM	Yes	N/A
UNEP-MAP Convention	Yes	N/A
Black Sea Convention	No	Regional significance (Bulgaria and Romania)

These agreements are mostly mixed agreements, signed both by EU and Member States (e.g. the Bern Convention) or exclusive agreements, to which only Member States are party (e.g. Ramsar Convention).

In the main, ome of the general and specific objectives of the Directives, indicated in section 2.3 of this study, are reflected in some of the objectives of the agreements, including site or species conservation.

The judgment criteria used for this question, contained in Annex 1 of this study are:

- Instances of coherence, incoherence and gaps between obligations arising from the relevant international agreements and the Directives (comparative legal analysis).
- Implementation of the relevant international agreements through the application of the Directives.

The first criterion compares general, specific and operational objectives of the Directives as well as other specific requirements, such as derogations, with those of the relevant agreements. As the Directives are not expected to reflect all of the aspects of the relevant international agreements, this evaluation is limited only to those gaps that should be covered by the Directives, given their objectives and scope. The second criterion concerns instances of implementation of the relevant international agreements through the application of the Directives.

Findings are presented per relevant international agreement, with a summary of key findings at the end.

8.9.2 Main sources of evidence

The following sources of information were used:

- Responses to the evidence gathering questionnaire from 69 stakeholders (mainly nature protection authorities and NGOs), responses to the online public consultation, information obtained from National Missions to 10 representative Member States, and meetings with relevant Commission services.
- Legal analysis of specific provisions of international agreements and the Nature Directives, complemented by information from case law and infringement proceedings.
- Related literature and international agreement implementation reports, together with Commission Guidance documents.

The amount of literature available per relevant international agreement varies considerably. While many studies deal with the correlation between the Nature Directives and the Bern Convention and the Convention on Biological Diversity (CBD), almost none examine the correlation between the Directives and the International Convention for the Protection of Birds and the European Landscape Convention.

8.9.3 Analysis of the question according to available evidence

Overall, 82% of responses to the evidence gathering questionnaire believe the Nature Directives to be coherent with the relevant international agreements. The stakeholders, as well as the EU bodies, regard the Directives as an instrument of implementation of international and global commitments on nature and biodiversity[635]. On the other hand, 49% of the responses to the online public consultation (Part II, Q29) state that the Nature Directives are not aligned with international commitments.

[635] E.g. Committee of the Regions, Opinion on the Contribution to the Fitness Check on the EU Birds and Habitats Directives, 115th plenary session, 3-4 December 2015, ENVE-VI/005.

There are two possible explanations for the discrepancy between the results of the evidence gathering questionnaire and the online public consultation. Firstly, in some cases, the Directives differ in objectives and scope from the relevant international agreements. For example, Article 1 of the CBD also addresses biodiversity genetic resources, which is not referred to in the Nature Directives, but is dealt with by a separate EU Regulation[636] adopted in April 2014. Secondly, the international agreements contain different procedural provisions which are not necessary in the Nature Directives, being instead framed within the EU institutional system which enables the management and implementation of the EU law.

Even if EU law does not fully transpose the relevant international agreements to which it is a party, the EU is still required to enforce those agreements. While Article 17(1) of the Treaty on European Union (TEU) requires the Commission to ensure the application of measures enacted pursuant to the EU Treaties (such as conventions (Epstein, 2014)), the Commission rarely brings actions to enforce convention provisions that have not been transposed into Union law (Krämer, 2011)[637]. International agreements are a source of EU law that prevails over both EU regulations and directives (Krämer, 2011)[638]. More specifically, international agreements to which the EU adheres become an 'integral part' of EU law (Born et al, 2015; Epstein, 2014) and are binding on both the EU and the Member States (Article 216(2) of the Treaty on the Functioning of the European Union (TFEU)), at least where the area covered by the agreement comes under EU competence (Krämer, 2011). For issues of incoherence, therefore, as well as gaps in areas under EU competence, between the Directives and the relevant international agreements to which EU is a party, the latter prevail and should be enforced by the EU. A possible explanation for the lack of enforcement of the relevant international agreements could be the general nature of international obligations and vagueness of some of their provisions. According to some stakeholders (e.g. European Landowners Organisation), these international agreements provide an overarching framework to give cooperation between countries legislative effect, but they should not be treated as imposing specific requirements in themselves.

8.9.3.1 Bern Convention

The Council of Europe's Convention on the Conservation of European Wildlife and Natural Habitats came into force in 1982, with the EU becoming party to it the same year[639]. The Convention aims to ensure conservation of wild flora and fauna species and their habitats. Special attention is given to endangered and vulnerable species, including endangered and vulnerable migratory species specified in the Convention's appendices.

The Nature Directives are the means by which the EU fulfils its obligations under the Convention (Jones, 2012). This was recognised by stakeholders in the evidence gathering process.

Although neither of the Directives explicitly mentions the Convention, the Birds Directive was designed to be compatible with the Convention (Evans et al, 2013) and the Habitats Directive was enacted to further implement the Convention (Epstein, 2014). As such, they are fundamentally coherent with the Convention (Council of Europe, 2014). Similarly, the Directives also impacted further development of the Convention. More specifically, the Convention's Emerald Network is directly based on the Directives' Natura 2000 network (Epstein, 2014), and all Natura 2000 sites are automatically part of the Emerald network (Evans et al, 2013).

[636] Regulation (EU) No 511/2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation in the Union.
[637] Council of Europe Committee on the Environment, Agriculture and Local and Regional Affairs, The need to assess progress in the implementation of the Bern Convention, Doc. 12459 Report to the Parliamentary Assembly, 5 Jan. 2011.
[638] Article 216(2) of the TFEU; *Case C-239/04* Commission v. France, p. 25; *Case C-12/86* Demirel, p.3719.
[639] Council Decision 82/72/EEC concerning the conclusion of the Convention on the conservation of European wildlife and natural habitats OJ L38, 10.2.82.

The Nature Directives are structured similarly to the Convention and often use equivalent language[640]. In some respects, the Directives contain stricter or more detailed provisions and measures than the Convention, as well as including additional species.

The Convention and the Habitats Directive have substantially similar objectives (European Commission, 2007b), as they aim to conserve wild flora and fauna and their natural habitats, as well as endangered and vulnerable species. To this end, the Directive adopted relevant definitions used by the Convention (Coffey and Richartz, 2003). However the Habitats Directive defines its general conservation objective in more detail by referring to the concept of Favourable Conservation Status, whereas the Convention is based on an undefined conservation level (Trouwborst and Fleurke, 2014).

Stakeholders stated that the provisions requiring the establishment of the Natura 2000 network to meet the Directives' objectives on site protection are coherent with those on site protection rules related to the Emerald Network under the Convention (Council of Europe, 2014)[641]. All specific tables (e.g. the national system of designated areas, biogeographical regions, etc.) needed for the Emerald Network, draw directly from the Natura 2000 standard data form[642]. In the evidence gathering questionnaires, stakeholders also recognised the coherence between the Directives and the Convention in this respect. Although there are no explicit provisions on connectivity in the Directives, some sources (Trouwborst, 2011) consider ensuring adequate connectivity between core protected areas to be mandatory under the Directives and the Convention alike. Doubts were raised in 2011 as to whether or not coherence between the Natura 2000 and Emerald networks has been fully assured, especially for habitat lists and their interpretation[643]. In 2011, the Convention Standing Committee amended Resolution No. 6 (1998) listing the species requiring specific habitat conservation measures to take into consideration the content of the Nature Directives[644]. In December 2014, the Standing Committee amended the Convention's Resolution No. 4 (1996) and Resolution 6 to take account of the changes to the list of species and habitats under the Nature Directives following recent enlargements of the EU (Council of Europe, 2014)[645].

No changes were made to the Directives to fully reflect the appendices of the Convention. A 2015 publication by a group of environmental experts (Born et al, 2015), claimed that in failing to require the designation of protected areas for all cetacean species covered by the Bern Convention's provisions on protected areas not contained in Annex II of the Habitats Directive, the EU is in breach of the Bern Convention. While no further evidence was identified to support this claim, the reliability of the study is sufficient to accept that improvements are needed in this area.

The Nature Directives and the Convention contain provisions on species protection and the relevant derogations. The protection of species is a specific objective which entails the adoption of measures such as prohibition of capture or killing of listed species and the granting of derogations respecting specific conditions. Picking, collecting, capture, killing, etc. of listed species is prohibited under the Directives and the Convention.

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[640] A comparison of the key provisions of the Directives and the Convention (without qualitative assessment) is available in the Council of Europe, Parliamentary Assembly, Report, The need to assess in the implementation of the Bern Convention, Doc. 12459, 5 January 2011, Appendix 1.

[641] Resolution No. 5 (1998) concerning the rules for the Network of Areas of Special Conservation Interest (Emerald Network); Resolution No. 8 (2012) of the Standing Committee, adopted on 30 November 2012 on the national designation of adopted Emerald sites and the implementation of management, monitoring and reporting measures.

[642] http://coe.archivalware.co.uk/awweb/pdfopener?smd=1&md=1&did=594649, accessed 09.09.15

[643] Aleksei Lotman, Explanatory memorandum to Draft Resolution on the Need to Assess Progress in the Implementation of the Bern Convention, Council of Europe Parl. Assem. Doc. 12459 (Jan. 5, 2011).

[644] https://wcd.coe.int/ViewDoc.jsp?id=1475233&Site=&BackColorInternet=B9BDEE&BackColorIntranet=FFCD4F&BackColorLogged=FFC679, accessed 15.09.15

[645] https://wcd.coe.int/ViewDoc.jsp?id=1475213&Site=&BackColorInternet=B9BDEE&BackColorIntranet=FFCD4F&BackColorLogged=FFC679, accessed 15.09.15

Inconsistencies have been identified between the species protected by the Directives and the Convention. For example, the European Court of Justice (CJEU) highlighted that Appendix II of the Convention does not contain all of the species covered under Annex IV(a) of the Habitats Directive[646]. In addition, Badger is protected under the Convention but not under the Directives (Krämer, 2011). Similar conclusions are reached in a 2013 study, which claims that the Convention protects a number of species not protected under the Nature Directives (Evans et al, 2013). Finally, the nature protection authority in Denmark believes that the Nature Directives do not encompass all the species included in the appendices to the Convention. The Convention's greater species coverage has been recognised by the Commission, which points to the larger geographical area covered by the Convention (European Commission, 2007b). The appendices of the Convention and the annexes of the Directives have a somewhat different composition and the provisions related to alien species appear to be stronger in the Convention[647]. Annexes and appendices of the Directives and the Convention are not entirely coherent, therefore, with respect to species. On damage to, or destruction of, breeding or resting sites, the word 'deliberate' is used in Article 6(b) of the Convention but is absent from Article 12(1)(d) of the Habitats Directive (European Commission, 2007b), making the latter more stringent, as it forbids both deliberate and non-intentional acts.

The provisions on derogations are coherent (Epstein, 2014; Trouwborst and Fleurke, 2014). Article 9 of the Convention makes the granting of derogations subject to the same conditions as those specified in Article 16(1) of the Habitats Directive[648]. The reports on derogations submitted under the Nature Directives are considered to meet the reporting obligations under the Convention[649]. However, the nature protection authority in Malta believes that the Nature Directives are incoherent with the Convention concerning derogations, although they reject the notion that this represents a problem at local level. No evidence of this claim is provided, nor is it supported by the literature. It can, therefore, be taken that provisions on derogations are coherent.

The Commission brought infringement proceedings against Member States in areas covered by the Nature Directives when the non-binding recommendations issued by the Convention bodies failed to bring about compliance with the Convention (Epstein, 2014)[650]. The EU enforcement powers are so effective in comparison to the enforcement powers of the Convention bodies that the latter are no longer reviewing cases of alleged breach of the Convention in matters that are the subject of EU infringement proceedings[651]. In practice, EU enforcement powers have had a positive impact on the protection of species in Europe. Wolf numbers and densities are significantly higher and trends significantly more positive in Member States (e.g. France, Germany, Italy, Sweden) where both the Convention and the Nature Directives apply than they are in non-EU European states (e.g. Switzerland and Norway) where the Convention applies in isolation (Trouwborst and Fleurke, 2014). This was confirmed by Member State NGOs, which noted that while both Norway and Sweden are members of the Bern Convention, the EU membership of the latter requires measures to be taken to protect large carnivores in Sweden, which does not happen in Norway. Interpretation of obligations under the Nature Directives by the CJEU is also relevant for the implementation of the Convention due to mutual influence and use of similar terminology.

For the instances of inconsistencies between the appendices of the Convention and annexes of the Directives, the EU secondary law should align with the Convention, given

[646] Case C-75/01 Commission of the European Communities v. Grand Duchy of Luxemburg, [2003] I-01585 p. 57
[647] Aleksei Lotman, Explanatory memorandum to Draft Resolution on the Need to Assess Progress in the Implementation of the Bern Convention, Council of Europe Parl. Assem. Doc. 12459 (Jan. 5, 2011).
[648] Case C-75/01 Commission of the European Communities v. Grand Duchy of Luxemburg, p. 88.
[649] Bern Convention's Standing Committee's Revised Resolution No. 2 (1993) on the scope of Articles 8 and 9 of the Bern Convention, adopted on 2 December 2011.
[650] Case C-103/00 Commission of the European Communities v. Hellenic Republic (the *Caretta caretta* case) [2002] I-01147 and the Case 383/09 European Commission v. the French Republic (*the European Hamster case*) [2011] I-04869.
[651] Council of Europe, Report of the 32nd Meeting of the Standing Committee, T-PVS (2012) 22 at 2.

that the former prevails over the latter (see section 8.9.3). This applies to species and habitats found in the EU, since the Convention covers a larger geographical area. Equally, the EU is not prevented from going beyond the content of the Convention. The arguments concerning updating the annexes to the Nature Directives are presented in section 7.2. In any case, the EU is required under the EU law to enforce the Convention (see section 8.9.3). However, in the past the Commission has not enforced the obligation on Member States to protect species listed in the annexes to the Bern Convention but not listed in the Nature Directives (Epstein, 2014).

Finally, with respect to the operational objective of funding, EU funding of various research and monitoring programmes has contributed towards improving available knowledge about the conservation status of species protected under the Convention (Epstein, 2014).

8.9.3.2 Convention on Biological Diversity

The Convention on Biological Diversity (CBD) was adopted in 1992 and entered into force in 1993. The EU is a party to the Convention since 1994, as well as party to the Cartagena and Nayoga Protocols since 2003 and 2014 respectively[652][653][654][655]. The objective of the CBD is to ensure the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including, by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding (Article 1).

The Nature Directives are key tools giving effect to EU commitments under the Convention (Day, 2015). The stakeholders (e.g. NGOs and Member State nature protection authorities) regard the Nature Directives as instruments to implement obligations under the Convention in the EU and in Member States. However, the requirements of the Convention are not met only by the Nature Directives, but are also reflected in several EU legal and policy instruments on biological diversity (WWF, 2007). The scope of the Convention is broader than the scope of the Directives, as clearly stated in its Article 1, which also addresses biodiversity of genetic resources. The issue of biodiversity of genetic resources is covered by a separate EU regulation[656].

There are various examples of coherence between the objectives and actions to be taken to attain those objectives under the Directives and the Convention. For example, EU reports to the Convention refer directly to the Nature Directives in matters of compliance with/implementation of various Articles of the Convention, such as Article 7 (identification and monitoring), Article 8 (in-situ conservation), Article 9 (ex-situ conservation) and Article 14 (impact assessment and minimising adverse impacts)[657]. Article 13 of the Convention is, in principle, reflected in Article 22(c) of the Habitats Directive[658]. The Commission regards the Natura 2000 network as fulfilling a clear EU obligation under the Convention, as the provisions on species protection contained in the Habitats Directive help to achieve the aims of the Convention (European Commission, 2007b)[659].

Member States refer to the Nature Directives as a tool to implement several requirements under the Convention: protected areas designation, habitats and species (includ-

[652] Council Decision 93/626/EEC concerning the conclusion of the Convention on Biological Diversity.
[653] Council Decision of 25 June 2002 concerning the conclusion, on behalf of the European Community, of the Cartagena Protocol on Biosafety.
[654] Council Decision of 14 April 2014 on the conclusion, on behalf of the European Union, of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity.
[655] https://www.cbd.int/information/parties.shtml, accessed 22.09.15
[656] Regulation (EU) No 511/2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation in the Union.
[657] https://www.cbd.int/doc/world/eur/eur-nr-02-en.pdf, accessed 03.09.15
[658] Case C-75/01 Commission of the European Communities v. Grand Duchy of Luxemburg, p. 94 and 95.
[659] http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000/2002_faq_en.pdf, accessed 28.09.15

ing migratory species) conservation, monitoring and research, restoration, application of the ecosystem based approach and principles of adaptive management, sustainable use of biodiversity, response to threats such as invasive alien species, assessment of impacts of plans and projects on biodiversity, development of ecological networks, management and conservation plans in cooperation with local communities and stakeholders, and trans-boundary and international cooperation (e.g. Belgian nature authorities, Greek and Irish reports to the Convention)[660].

Numerous decisions of the Conference of the Parties to the Convention refer to the Directives in a way that suggests coherence between requirements under the Nature Directives and the Convention[661]. One example is the Programme of Work on Protected Areas (PoWPA) which was agreed in 2004 (COP 7 Decision VII/28). The PoWPA encourages parties to the Convention to develop and manage ecologically representative networks of protected areas on land and sea. The Nature Directives and the PoWPA overlap in several areasA 2007 analysis of how the Natura 2000 network meets the requirements of the PoWPA identified a particular gap[662]. Goal 2.2, calling for enhanced and secure involvement of indigenous and local communities and relevant stakeholders, is not addressed under the Nature Directives, which do not provide for a participatory role of local communities during the process of Natura 2000 site selection. However, the Convention does not specifically address this issue, and its implementation is uncertain. While the Nature Directives do not explicitly refer to participation, the Commission Guidance document recommends the involvement of stakeholders in the adoption of conservation measures. As this is being implemented in many Member States, and requested in others, it is not sufficient to represent a gap between the Directives and the Convention.

The PoWPA was reaffirmed in 2010 in Nagoya, Aichi, Japan. There, the Conference of the Parties to the Convention adopted and updated the Strategic Plan for Biodiversity for the 2011–2020 period based on 20 targets (the 'Aichi Biodiversity Targets') (COP 10 Decision X/2). The Plan represents a global framework aimed at halting biodiversity losses and covers a broader scope of issues related to biodiversity loss than the Nature Directives, but which are partly captured by the EU biodiversity strategy. Despite the broader scope of the Plan, different stakeholders (e.g. NGOs, Member State nature protection authorities) agree that the Nature Directives play an important role in reaching a number of the Aichi Targets. More specifically, the Nature Directives are especially important for reaching the following Targets: 5, 6, 7, 8, 9, 10, 11, 12, 14, 15 and 20. For Targets 6, 7 and 11, the Nature Directives are used as indicators reviewing effectiveness of the implementation of the Aichi Targets[663].

Some EU level organisations' responses to the evidence gathering questionnaire pointed to inconsistencies between the Directives and the Convention. One (COPA COGECA Sweden) states that the Convention calls for decision-making on wildlife management to be as localised/regionalised as possible, while the Directives represent a top-down approach where the Commission can hinder local governance through infringements procedures. Also, according to the opinion of COPA COGECA Sweden and FACE, the Nature Directives do not recognise 'instrumental' values (ecosystem services, sustainable use, and traditional practices of local communities) and consider specific uses (e.g. hunting) as a threat and an exception. However, according to the literature, the protection of the EU's natural capital and maintenance of ecosystem services cannot be dissociated from the full and timely implementation of the Nature Directives (Day, 2015), making these issues insufficient to constitute an inconsistency.

[660] E.g. Third National Report to the Convention on Biological Diversity by Greece. 2008; Fifth National Report to the Convention on Biological Diversity by Ireland, 2014.
[661] COP 10 Decision X/31, Section A, sub-section 2, item 3, footnote 67 and COP 12 Decision XII/22, Table 7, item 14.
[662] The gaps are identified in the following publication: (WWF, 2007).
[663] Fifth Report of the European Union to the Convention on Biological Diversity.

Finally, some studies state that while the Convention appears to require more extensive obligations than those under the Nature Directives, the Directives are, in practical terms, stronger and more effective (Jones, 2012).

8.9.3.3 Convention for the Protection of the World Cultural and Natural Heritage

The Convention entered into force in 1975. While all of its Member States are party to the Convention, the EU itself is not[664]. The scope of the Convention is wider than the scope of the Nature Directives, as it incorporates cultural heritage sites which are not included under the scope of the Directives. However, the scope is limited to site protection measures and, in this sense, the Nature Directives' objectives cover a broader scope.

For a natural heritage site to be included on the World Heritage List, it must be of outstanding universal value, must meet at least one out of 10 selection criteria and must have an adequate protection and management system to ensure its safeguarding[665]. The outstanding universal value does not refer only to scientific and conservation value, but also encompasses aesthetic value, making the Convention's scope broader in this respect.

Only two of the selection criteria, namely criteria ix and x, are relevant for the Nature Directives, and both are coherent with the Directives.

The NGOs believe that the Nature Directives implement many important aspects of the Convention. In Greece, for example, the World Heritage natural sites are 97.94% covered by Natura 2000 sites. While there is a slight difference between the World Heritage natural sites and Natura 2000 sites, this arises from digitisation issues rather than differences in actual site boundaries, according to the Greek NGO. However, no information is available on the coherence between management plans/systems under the Directives and those under the Convention, including whether the same plans/systems are applicable to both Natura 2000 sites and World Heritage natural sites.

Each nominated site under the Convention should have an appropriate management plan, or other documented management system, whose purpose is to ensure the effective protection of the nominated area for present and future generations[666]. Effective management involves a cycle of actions to protect and conserve the site, and an integrated approach to planning and management is essential. As such, the measures on management under the Directives are coherent with those under the Convention. In practice, of 139 World Heritage natural sites designated under criteria ix and/or x, alone or in combination with other criteria (Dudley, 2013), very few within Member States are subject to management plans that are available on the Convention's website. The analysis of their content does not provide sufficient information for any conclusion on the coherence between the management plans/systems under the Directives and those under the Convention[667].

[664] http://whc.unesco.org/en/statesparties/?searchStates=&id=&region=1&submit=Search, accessed 28.09.15
[665] Operational Guidelines for the Implementation of the World Heritage Convention, WHC, 15/01, 8 July 2015.
[666] Operational Guidelines for the Implementation of the World Heritage Convention, WHC, 15/01, 8 July 2015.
[667] http://whc.unesco.org/pg.cfm?cid=337&l=en&&searchDocuments=&category=management_plans&&index=1, accessed 14.09.15.

8.9.3.4 Convention on Wetlands of International Importance (Ramsar Convention)

The Convention on Wetlands of International Importance entered into force in 1975. All of the Member States are party to the Convention, however, the EU itself is not[668].

The **scope** of the Convention is limited to site protection measures, with the objectives of the Nature Directives giving it broader scope in this context. However, the Convention has a broader scope than the Directives in a number of ways: it is aimed at ecosystems as a whole, addressing, taking into consideration the significance of wetlands within a world-wide perspective and which are considered part of a bigger whole (e.g. water catchment areas and flyways); it includes economic and recreational value of wetlands, as well as the consideration of wetlands as protection against floods (Salverda and Chardon, 2006). On the other hand, some Member State nature protection authorities believe that the Nature Directives work to implement the provisions of the Ramsar Convention relating to the protection and management of hydrological systems and functions, as well as wise use of natural values and ecosystem services of wetlands. The differences, therefore, exist in terms of the following: the Nature Directives protect only those aspects of wetlands that are relevant for the habitats and species for which the site was designated and it accounts for designated sites only, while the Convention protects all aspects of the site and aims at all wetlands, including sites that are not designated (Salverda and Chardon, 2006). These differences, however, do not constitute gaps, as they go beyond the objectives of the Nature Directives.

Each party to the Convention is required to: designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance; formulate and implement its planning so as to promote the conservation of the wetlands included in the List; and, insofar as possible, to promote the wise use of wetlands in its territory. Each party to the Convention is also required to consider its international responsibilities for conservation, management and wise use of migratory stock of birds ecologically dependent on wetlands, when designating suitable wetlands.

NGOs and the Member State nature protection authorities regard the Nature Directives as a tool to implement the Ramsar Convention. This is especially visible in the importance that National Reports on the Implementation of the Ramsar Convention give to the Nature Directives, as well as from the available publications[669](Wahl et al, 2013)[670].

Article 4(2) of the Birds Directive makes an indirect reference to the Ramsar Convention when setting out its requirement that Member States pay particular attention to the protection of wetlands, particularly those of international importance. Also, many wetlands types are protected by the Nature Directives (European Commission, 2011e), and they are, therefore, proportionally well represented in the Natura 2000 network[671].

In many Member States, (e.g. the Netherlands, Cyprus, Poland, Denmark and Estonia) all Ramsar sites are fully included in the Natura 2000 network[672673674]. In fact, the boundaries of Ramsar sites and Natura 2000 sites in the Netherlands have been harmonised in order to unify the reporting obligations and comparability of these sites[675]. In other Member States, there are significant overlaps. For example, in the Czech Republic, while only six out of 14 Ramsar sites are completely part of Natura 2000, not a single

[668] http://www.ramsar.org/country-profiles, accessed 28.09.15
[669] Greek National Report on the Implementation of the Ramsar Convention on Wetlands, submitted to COP10, 2008.
[670] http://www.vliz.be/wiki/Ramsar_Convention_for_Wetlands, accessed 28.09.15
[671] Second National Report of the European Community to the Convention on Biological Diversity, section 4.7.5.
[672] National Report on the Implementation of the Ramsar Convention on Wetlands, submitted to COP 12, 2015.
[673] Cyprus has only two Ramsar sites. One is a Natura 2000 site and the other is located in the British Army Base where the *acquis* does not apply. The site located in the Army Base is designated as an SPA under the British Bases' mirror law.
[674] National Report on the Implementation of the Ramsar Convention on Wetlands, submitted to COP11.
[675] National Report on the Implementation of the Ramsar Convention on Wetlands, submitted to COP 12, 2015.

one is completely outside of the Natura 2000 network, and only 7% of the territory of Ramsar sites is located outside of the Natura 2000 network. Similarly in Germany and Greece, 97% of the total area of Ramsar sites is covered by the Natura 2000 network.

Two reasons have been identified for this slight difference between the area covered by Ramsar sites and the Natura 2000 network. In some cases, the difference arises from digitisation issues rather than differences in actual site boundaries, according to one Greek NGO. There are also differences in the methodology used, with SPAs under the Birds Directive selected and designated by the Member States and many countries using criteria based on the Ramsar 1% of flyway population (Evans, 2012). In the UK, Ramsar sites are designated under agreed criteria, which are not entirely the same as the species and habitats listed on the relevant annexes of the Habitats Directives (e.g. the Ramsar designation of Llyn Tegid is partly based on the presence of Coregonus lavaretus, a species of fish not listed in Annex II of the Habitats Directive). Stakeholders (e.g. Member State NGOs) do not consider differences in selection methodology to be a conservation issue.

The adoption of the necessary conservation measures, including management plans, where necessary, for Natura 2000 sites, an operational objective under the Habitats Directive, is also used for the management of Ramsar sites important for birds. In Denmark, a nature management plan has been developed for the Danish Ramsar sites as part of the implementation of the Nature Directives[676]. In Slovenia this is the case for certain sites, e.g. Sečoveljske soline and Cerkniško jezero. In Austria, the Nature Directives had a positive impact on the adoption of management plans for Ramsar sites[677]. While the global average for Ramsar sites with management plans is 32.54%, in Austria the rate was 52% in December 2014 (Mauerhofer et al, 2015). Also, the management plans for Ramsar sites that have been included in the Natura 2000 network have stricter management measures than in those sites not included in Natura 2000[678].

Overall, while some studies claim that the Convention's approach is more pro-active because the 'wise-use concept' stimulates the protection of a wetland through the creation of goodwill by co-users and/or creation of win-win situations (Salverda and Chardon, 2006), in practice the implementation of the Convention benefited from the existence of the Nature Directives. The legal requirements of the Nature Directive are more precise, with enforcement much better organised in the framework of the Directives (Cliquet, 2005). For example, while few sites in Austria were designated as Ramsar sites prior to Austria's accession to the EU in 1995, the number of sites then grew to 23 (Mauerhofer et al, 2015). This jump coincides with Austria's attempts to meet the requirement to designate Natura 2000 sites (Mauerhofer et al, 2015). Similarly, in the Netherlands, at first the assignment of Ramsar sites started slowly, but in 2000 the procedure was streamlined as a result of CJEU condemnation of the Netherlands for failing to designate SPAs within the proscribed timeframe (Salverda and Chardon, 2006).

8.9.3.5 European Landscape Convention

The European Landscape Convention entered into force in 2004. The EU and some of its Member States, namely Austria, Denmark, Germany, Malta, are not parties to the Convention[679]. No relevant publication comparing the Nature Directives to the Convention was identified. Other sources of information used, such as stakeholder opinion, analysis of CJEU jurisprudence, etc., did not yield any information on the correlation between the Directives and the Convention.

The objective of the Convention is to promote landscape protection, management and planning, and to organise European cooperation on landscape issues. The Convention

[676] http://www.norbalwet.org/our-wetlands/denmark/, accessed 28.09.15
[677] Conclusion drawn from the article by Mauerhofer (Mauerhofer et al, 2015).
[678] E.g. in Austria (Mauerhofer et al, 2015).
[679] http://conventions.coe.int/Treaty/Commun/ChercheSig.asp?NT=176&CM=8&DF=&CL=ENG, accessed 01.10.15

acknowledges the importance of protecting landscape for the quality of life of populations and for local cultures, as well as ecosystem protection (Musard et al, 2014). As such, the Convention has a broader scope than the Habitats Directive which, as one of its operational objectives, refers only to landscapes which are of major importance for species of wild fauna and flora (Articles 3(3) and 10).

The parties to the Convention are required to establish and implement landscape policies aimed at landscape protection, management and planning. In this respect, the Convention overlaps with the Nature Directives, especially Article 6 of the Habitats Directive.

8.9.3.6 CITES Convention

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) entered into force in 1975, with the EU signing up to the Convention in April 2015[680]. However, due to fact that EU Member States became parties to the Convention earlier (e.g. Germany and the UK became parties in 1976) the provisions of the Convention had to be implemented uniformly in all EU Member States. The reason for this is the harmonisation requirements under the European Single Market and the absence of systematic border controls within the EU[681].

CITES is implemented in the EU through a set of Regulations known as the EU Wildlife Trade Regulations, most notably Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein. The EU Wildlife Trade Regulations not only implement the provisions of CITES and the majority of CITES Resolutions, they also go beyond the requirements of the Convention in some respects[682].

The provisions on species protection contained in the Habitats Directive help to achieve the aims of the Convention (European Commission, 2007b). While the Nature Directives complement the Convention, they also promote its stricter implementation. Species which are subject to a trade prohibition under the Nature Directives are automatically listed in Annex A of the Council Regulation (EC) No 338/97. NGOs believe that the Nature Directives contribute to the implementation of CITES.

8.9.3.7 CMS (Bonn) Convention

The Convention on the Conservation of Migratory Species of Wild Animals - to which the EU is a party - entered into force in 1983[683]. It aims to conserve terrestrial, aquatic and avian migratory species throughout their range.

The Nature Directives are key tools giving effect to EU commitments under the Bonn Convention (Day, 2015), as the provisions contained in the Habitats Directive help to achieve the aims of the Convention (European Commission, 2007b). NGOs and nature protection authorities also take this view.

The documents adopted by the Conferences of the parties repeatedly make reference to the Nature Directives as an incentive to take action[684]. According to some nature protection authorities (e.g. Belgium), the Nature Directives implement provisions of the Convention concerning migratory species, such as conservation and management of the habitats of these species, taking into account their life cycles and migration routes.

Some nature protection authorities (e.g. Malta) state that the Nature Directives are inconsistent with the Convention on certain provisions and on the list of species, but they

[680] https://www.cites.org/eng/disc/parties/chronolo.php, accessed 30.09.15
[681] http://ec.europa.eu/environment/cites/legislation_en.htm, accessed 30.09.15
[682] For a comparison between EU Wildlife Trade Regulations and the CITES, please see: http://ec.europa.eu/environment/cites/pdf/differences_b_eu_and_cites.pdf accessed 17.02.16
[683] Council Decision of 24 June 1982 on the conclusion of the Convention on the conservation of migratory species of wild animals (82/461/EEC).
[684] Resolution 7.5, Wind Turbines and Migratory Species, adopted at the Seventh Meeting of the Conference of the Parties, Bonn, 2002.

do not provide any further details. According to some NGOs (e.g. Netherlands), Member States introduced legislation to provide protection to a number of areas, species and natural features not covered by the Directives, in part to implement obligations under treaties such as the Bonn Convention. However, given that the scope of the Habitats Directive is limited to species of European importance, and that no additional information was found, this is not taken to constitute a gap between the Nature Directives and the Convention.

The Bonn Convention uses a somewhat different formulation of Favourable Conservation Status than the Habitats Directive (Epstein et al, 2015), however the difference does not cause inconsistencies.

8.9.3.7.1 Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)

The AEWA entered into force in 1999 and the EU is one of its parties[685]. The AEWA is a complementary framework for the conservation of migratory waterbirds and their habitats across Africa, Europe, the Middle East, Central Asia, Greenland and the Canadian Archipelago.

The Nature Directives are key tools to give effect to EU commitments under the AEWA (Day, 2015). NGOs in Belgium and Germany have stated that the Nature Directives implement the provisions of the AEWA, and the Estonian NGO states that the CMS/AEWA Critical Site Network distinguishing the most important sites for migrating waterfowl, largely overlaps with SPAs.

The nature protection authorities claim that species occurring naturally in the EU that are listed in the AEWA are fully protected under the annexes to the Nature Directives. Some, however, such as the Danish nature protection authority, claimed that challenges concerning amendments to the annexes of the Nature Directives may hamper EU flexibility in international cooperation. For example, in 2012, the EU was unable to support a proposal on protection of certain bird species because of the limitations imposed by the Birds Directive rather than because of the substance of the matter. This does not mean, however, that the Nature Directives and the AEWA are inconsistent. According to one EU level organisation (FACE), the systematic population review under the AEWA can cause some inconsistencies when populations change status. This is the case when a species from Annex II of the Birds Directive has one of its populations present in the EU up-listed to AEWA Column A, Categories 1, 2 or 3 (without asterisk). The Nature Directives do not have the flexibility to respond to the changes in species as easily as this agreement does.

8.9.3.7.2 Other agreements under the Bonn Convention

The EU is not a party to the other agreements under the Bonn Convention, i.e. Agreement on the Conservation of Population of European Bats (EUROBATS), Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS)[686] Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and contiguous Atlantic Area (ACCOBAMS) and the Agreement on the Conservation of Seals in the Wadden Sea.

The latter was the first regional agreement under the Bonn Convention and it entered into force in 1991 between Denmark, Germany and the Netherlands[687]. The German nature protection authority noted that the Nature Directives largely implement the Agreement and that species listed in this agreement are fully protected under the annexes to

[685] Council Decision of 18 July 2005 on the conclusions on behalf of the European Community of the Agreement on the Conservation of African-Euroasian Migratory Waterbirds.
[686] http://www.ascobans.org/en/parties-range-states, accessed 01.10.15
[687] http://www.cms.int/sites/default/files/document/CMS-StC41-doc_18_a_waddenseaseals.pdf, accessed 01.10.15

the Nature Directives. EUROBATS entered into force in 1994 and neither the EU itself, nor some Member States (Spain, Austria, Greece) are party to it. Some nature protection authorities noted that the Nature Directives largely implement the EUROBATS Agreement. The ASCOBANS Agreement entered into force in 1994, and overlaps with the Habitats Directive in that all species of cetaceans are listed in Annex IV of the latter (Coffey and Shaw, 2001). Belgium, Denmark, Finland, France, Germany, Lithuania, Netherlands, Poland, Sweden, UK are all parties to the Agreement[688]. ACCOBAMS entered into force in 2001 and 11 Member States are its parties (Bulgaria, Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Romania, Slovenia and Spain)[689]. Various NGOs claim that the Nature Directives are a central component to Member States' progress reports to other international and regional conventions, such as ASCOBANS and ACCOBAMS, which entered into force in 2001.

8.9.3.8 International Convention for the Protection of Birds

The International Convention for the Protection of Birds entered into force in 1963. Only 10 countries are parties to the Convention, including six EU Member States, namely Belgium, Italy, Luxemburg, Netherlands, Spain and Sweden[690]. The EU itself is not a party. Very limited information on the coherence between the Nature Directives and the Convention was identified. Significantly, the CJEU stated in one of its rulings that the Birds Directive embodies stricter requirements in terms of protection than the Convention does[691].

8.9.3.9 Regional Sea Conventions (Baltic, North East Atlantic, Mediterranean and Black Seas)

There are four regional sea conventions:

- Convention for the Protection of the Marine Environment in the North-East Atlantic of 1992 (OSPAR Convention)[692].
- Convention on the Protection of the Marine Environment in the Baltic Sea Area of 1992 (HELCOM Convention)[693].
- Convention for the Protection of Marine Environment and the Coastal Region of the Mediterranean of 1995 (UNEP-MAP Convention)[694].
- Convention for the Protection of the Black Sea of 1992 (Black Sea Convention).

The EU is a party to the first three Conventions, and the Commission has requested the adoption of amendments to the Black Sea Convention in order to allow the EU to accede to it[695]. The objectives of the Regional Sea Conventions aim to protect maritime areas

[688] http://www.ascobans.org/en/parties-range-states, accessed 05.02.15
[689] http://www.accobams.org/images/stories/PDF/accobams-parties-and-signatories.pdf, accessed 05.02.15
[690] http://www.ecolex.org/ecolex/ledge/view/RecordDetails?index=treaties&id=TRE-000066, accessed 05.02.16
[691] Case C-157/89 Commission v. Italy [1991], p. 23.
[692] Council Decision of 7 October 1997 on the conclusion of the Convention for the protection of the marine environment of the north-east Atlantic.
[693] Council Decision of 21 February 1994 on the conclusion, on behalf of the Community, of the Convention on the Protection of the Marine Environment of the Baltic Sea Area.
[694] Council Decision of 22 October 1999 on the acceptance of amendments to the Convention for the Protection of the Mediterranean Sea against Pollution and to the Protocol for the Prevention of Pollution by Dumping from Ships and Aircraft.
[695] http://ec.europa.eu/environment/marine/international-cooperation/regional-sea-conventions/index_en.htm, accessed 30.09.15

against the adverse effects of human activities and to conserve marine ecosystems and restore adversely affected marine areas.

Although analysed under the same sub-heading, there are noticeable differences among the Conventions, both in terms of the available literature and the level of development of work and cooperation, with OSPAR and HELCOM scoring better on both counts.

The scope of the Nature Directives and the Conventions do not fully coincide. As some nature protection authorities (e.g. Greece) pointed out, while there are many instances of coherence between the Directives and the Conventions, the latter are applicable to high seas, while the Directives are limited to the areas under jurisdiction and sovereignty of Member States. Other pieces of EU legislation (e.g. MSFD) contain provisions implementing various aspects of the Conventions.

The Commission acknowledged that there are a number of marine habitat types and species of European conservation concern, many of which are identified and listed by OSPAR, HELCOME and UNEP-MAP documents, that are not presently covered by the Nature Directives but which need protection to ensure their Favourable Conservation Status (European Commission, 2007c). The Commission stated that 'agreements on marine habitats and species of conservation concern will be relevant inputs to be considered in the first stages of the process of possible future adaptations of the Habitats Directive annexes in terms of the marine environment' (European Commission, 2007c).

Some of the nature protection authorities (e.g. Germany) stated that significant parts of the OSPAR Convention are implemented by the Nature Directives. Also according to the stakeholders, the Convention took the Directives into account, for example, the Natura 2000 network is coherent with networks of MPAs under the OSPAR Convention. Indeed, the parties to the Convention are advised to designate marine Natura 2000 sites, an operational objective under the Habitats Directive, as OSPAR MPAs (European Commission, 2007c) and many studies used to select OSPAR MPAs are useful for selection of marine Natura 2000 sites (Chantal Ribeiro, 2008). All sites in the North Sea that have been nominated by Member States for the OSPAR Network also qualify under the Nature Directives. No sites have been selected, therefore, that only qualify under the broader OSPAR ecological selection criteria (Trouwborst and Dotinga, 2011). Similarly, in the UK, marine Natura 2000 sites also coincide with OSPAR MPAs[696]. Other alignments can be observed in that the same reports in relation to designated areas are sent to both the Commission and to the OSPAR Commission[697]. Where management plans for Natura 2000 sites exist, as another operational objective under the Habitats Directive, these will be sufficient for OSPAR purposes (OSPAR Commission, 2003).

Some gaps exist between the species covered by the Habitats Directive and the OSPAR List of Threatened and/or Declining Species and Habitats[698]. The OSPAR List contains species and habitats that need to be protected according to the OSPAR Commission. More specifically, Annex II of the Habitats Directive does not include Thornback Ray and the Ocean Quahog which are included in the List (Trouwborst and Dotinga, 2011). Nevertheless, in practice, these issues have not created inconsistency between the Nature Directives and the OSPAR Convention.

Similarly to OSPAR, some of the nature protection authorities (e.g. Germany and Estonia) state that significant parts of the HELCOM Convention are implemented by the Nature Directives. According to the stakeholders, the Convention took into account the Directives, with HELCOM agreeing that the marine Natura 2000 sites qualify for inclusion into the HELCOM network of MPAs (European Commission, 2007c). Protected sites under the Nature Directives can simultaneously be MPAs under HELCOM. However, only 64% of

[696] http://jncc.defra.gov.uk/page-4526, accessed 10.09.15
[697] OSPAR Recommendation 2003/3 on a Network of Marine Protected Areas, amended by OSPAR Recommendation 2010/2.
[698] http://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats, accessed 23.09.15

Natura 2000 sites in the Baltic Sea have also been designated as HELCOM MPAs[699]. This difference may be explained by the fact that the Natura 2000 network protects natural habitats and species deemed important at EU level, whereas the HELCOM MPAs network aims to protect marine and coastal habitats and species specific to the Baltic Sea.

Some of the nature protection authorities, as well as other public authorities (e.g. Cyprus), regard the Nature Directives as tools to implement the UNEP-MAP Convention. According to the nature protection authorities, the Natura 2000 network is coherent with MPAs under the Barcelona Convention. In Greece, for example, areas protected under the Barcelona Convention are 98.15% covered by Natura 2000. According to stakeholders (e.g. Greek NGOs), slight differences between areas covered by Natura 2000 and UNEP-MAP MPAs arise from digitisation issues, rather than differences in actual site boundaries.

Some nature protection authorities (e.g. Malta) state that the Nature Directives are inconsistent with the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean under the UNEP-MAP Convention with regard to derogations. According to the same authority, in case of inconsistencies, the more stringent of the two approaches is applied.

8.9.4 Key findings

According to the evidence examined and evaluated in relation to the judgment criteria defined for this question (referred to in the description of the introduction and approach to this question and in Annex 1 to this study) the following key findings can be identified:

- There is widespread understanding that the Nature Directives are generally coherent with the international agreements. There are numerous instances of coherence, particularly in relation to the general, specific and operational objectives. Several differences in scope between the Directives and some international conventions have been identified in relation to species and habitat types covered, i.e. within the annexes, or type of measures applied, such as site protection. In cases of inconsistencies or gaps in areas under EU competence between the Directives and agreements to which the EU is party, the latter prevail and should be enforced by the EU.
- EU enforcement powers are stronger than those of the bodies responsible for managing the international agreements. Enforcement of the Nature Directives' provisions that also implement those of the agreements, have, therefore, had a positive impact on their implementation. For example, the literature and stakeholders both report Wolf numbers and densities as significantly higher and trends significantly more positive in EU Member States (e.g. Sweden) where both the Bern Convention and the Nature Directives apply than they are in non-EU European states (e.g. Norway), where only the Convention applies.
- While 82% of responses to the evidence gathering questionnaire stated that the Nature Directives are coherent with international agreements, 49% of respondents to the online public consultation (in Part II, therefore completed by knowledgeable experts in the area) did not view the Nature Directives as aligned with international commitments. This result may have arisen from the differences between the objectives and scope of the Nature Directives and the relevant international agreements (e.g. the issue of biodiversity of genetic resources contained in the CBD is addressed at the EU level by a separate regulation).
- The Birds and Habitats Directives are the key EU legal instruments giving effect to the objectives of the Bern Convention in the EU, and, as such, are generally coherent with the Convention. However a number of inconsistencies have been

[699] http://helcom.fi/action-areas/marine-protected-areas/HELCOM-MPAs-and-Natura-2000-areas/, accessed 09.09.15

identified, with certain species protected under the Convention but not the Directives (e.g. Badger). The Directives have influenced the further development of the Convention, in particular the establishment of the Convention's Emerald Network, as a protected area network was not originally foreseen under the Convention. In other instances, the Directives also go beyond the requirements of the Convention, e.g. while the Convention forbids the deliberate damage to, or destruction of, breeding or resting sites, Article 12(1)(d) of the Habitats Directive forbids any deterioration and destruction, whether deliberate or not.

- The literature and stakeholders both regard the Nature Directives as an instrument to implement the CBD in the EU. Equally, decisions of the Conference of the Parties to the Convention and the Convention implementation reports, regard the Directives as coherent with the Convention. The significance of the Nature Directives in delivering key commitments under the Convention (e.g. Aichi Target on protecting at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas by 2020) is recognised by numerous stakeholders.
- The Nature Directives are generally coherent with the Ramsar Convention. The wording of the Directives (i.e. explicit mention is made of wetlands of international importance in the Birds Directive), the literature, and the extent to which the Convention's implementation reports refer to the Nature Directives, all point to such coherence. Most stakeholders regard the Nature Directives as a tool to implement the Ramsar Convention, and, in practice, the implementation of the Convention has benefited from the existence of the Nature Directives. In many Member States, (e.g. the Netherlands, Cyprus, Poland, Denmark and Estonia), all Ramsar sites are fully included in the Natura 2000 network, while in the other Member States, most Rasmsar sites are also covered by the network. Management plans prepared for Natura 2000 sites are also used for the management of Ramsar sites.
- The provisions on species protection contained in the Nature Directives help to achieve the aims of the Bonn Convention. Member State nature protection authorities and NGOs acknowledged that the Nature Directives are key tools to give effect to EU commitments under the Bonn Convention, as well as agreements under the Convention (e.g. AEWA). The Bonn Convention uses a different formulation of Favourable Conservation Status and, as with AEWA, changes to its appendices can be introduced more easily at each Conference of the Parties. This has led to a small number of cases where the listing or protection status of species is inconsistent between the Conventions and the Nature Directives.
- The Commission has acknowledged that there are a number of marine habitat types and species of European conservation concern which are listed by OSPAR, HELCOM and UNEPMAP documents, but not currently covered by the Nature Directives. The Commission has also recognised that these types and species require protection to ensure their Favourable Conservation Status. The Commission stated that 'agreements on marine habitats and species of conservation concern will be relevant inputs to be considered in the first stages of the process of possible future adaptations of the Habitats Directive annexes in terms of the marine environment'.

9 Evaluation and analysis of EU added value questions

The Tender Specification defines added value of the EU Nature Directives as 'the value resulting from EU support for conservation of natural habitats and of wild fauna and flora in the EU, which is additional to the value that would have resulted from activities at regional and national levels.' This section therefore establishes the extent to which the Nature Directives are providing added value, if any, as well as the need for continued EU action.

In line with Chapter VI, Section 2 of the Better Regulation Guidelines, the evaluation of EU legislation critically compares the actual performance of the Nature Directives with earlier estimates of expected benefits from the legislation[700]. Such retrospective analysis, however, is challenging for this evaluation, as the Directives were adopted without an ex ante impact assessment that could inform these assumptions.

As quantitative evaluation of the EU added value of legislation (European Parliament, 2010, p7) is considered a difficult task, evaluation literature (Gertler, P et al, 2011) suggests that the assessment of a counterfactual is an appropriate alternative (i.e. an examination of the situation had the EU laws not been adopted). However, 'when evaluating EU legislation, it is particularly difficult to identify a robust counterfactual situation'[701]. As a means of establishing the hypothetical situation in the absence of legislation, the evaluation literature recommends using qualitative 'comparison' examples that could most accurately reproduce the counterfactual. However this methodology is mainly proposed for the analysis of funding programmes, where the counterfactual can be more accurately drawn on the basis of a baseline properly established in advance. The use of a counterfactual for the evaluation of legislation is more challenging, as concrete baselines and expectations of results showing the EU added value are generally not formally or precisely established from the start, and there is no methodology to accurately determine what might have resulted from the 28 Member States maintaining their individual national or regional policies over the whole period, or the influence Member States may have had on each other. This is particularly the case for the nature legislation, which was adopted without the kind of formal prospective impact assessment required for EU legislation today. We have therefore used examples that could either reproduce a potential counterfactual, or show the significant changes caused by the Directives that would likely not had happened through solely independent national action, in relation to the objectives established and the needs to be addressed (see section 2.3).

This study has selected illustrative examples to reflect transformational changes or trends triggered by the Directives, and which almost certainly would not had happened without them. Those examples illustrate comparisons between the current situation and situations either prior to the adoption of the Directives (temporal comparisons) or in countries where the legislation does not apply (spatial and implementation comparisons). The examples are taken from literature, experts and stakeholder responses to the evidence gathering questionnaires and the online public consultation (for more information on the methodology used (see section 4.4 of the study).

[700] European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.
[701] European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.

9.1 AV.1 - What has been the EU added value of the EU nature legislation?

A.V.2 - What would be the likely situation in case of there having been no EU nature legislation?

9.1.1 Interpretation and approach

This chapter assesses the EU added value of the nature legislation, defined as the additional value resulting from EU legislation compared to what would have been achieved by Member States acting in isolation. Both sides of the question are addressed i.e. what is the added value brought about by the Nature Directives, and what would have been the situation had there been no EU nature legislation. While the mandate for the Fitness Check sets this out as a single question, it was divided in two in the evidence gathering questionnaire in order to obtain more information from stakeholders[702]. Criteria are needed to determine if the legislation has delivered genuine added value with a clear European dimension (Medarova-Bergstrom et al, 2012). The judgement criteria used to guide the analysis of the evidence for the evaluation of the question is:

- The contribution of the EU nature legislation to the situation as it exists now compared to the situation before its adoption or that which would have existed without EU nature legislation.

The European Parliament report on the concept of Added Value (European Parliament, 2011), p5) refers to the Commission definition of the 'added value test' which is based on compliance with three conditions:

- 'Policy relevance (the intervention/legislation addresses the Union's key objectives)'. This responds to the question, 'what do we want?'
- 'Subsidiarity (transnational or cross-border actions and economies of scale)'. This responds to the question, 'who should do it?'
- 'Proportionality (assessment of effectiveness and efficiency of delivery)'. This responds to the question, 'how do we want it?' (European Parliament, 2011), p7)

In the context of this study, the European added value of the Nature Directives is assessed in terms of its impact on the overall, general and specific objectives of the Directives in the context of the principles of 'subsidiarity' and 'proportionality' under Article 5 of the Treaty of the European Union (TEU). This provision requires the Union to act only if and insofar as the objectives of the proposed action cannot be sufficiently achieved by the Member States at either central or local level, but can be better achieved at Union level for reasons of scale or effects of the proposed action. The principle of proportionality requires that the content and form of EU action does not exceed that which is necessary to achieve the objectives of the Treaties.

Analysis of the added value of the EU Nature Directives was based on the use of examples comparing the current situation with conditions at the time of the adoption of the Directives and/or Member States' entry into the EU. The 'European dimension', too, has been examined, considering the additional value of the Birds and Habitats Directives over and above what would have resulted from activities at national level based on the exam-

702 http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/Mandate%20for%20Nature%20Legislation.pdf accessed 7.12.15

ples of transformational changes triggered by the Directives which would not otherwise have taken place.

The analysis carried out examined the extent to which the current situation can be ascribed to the EU nature legislation in relation to the different objectives/measures set out in the Directives. Determining, for example, whether a network of protected areas such as that achieved by Natura 2000 would exist, whether the criteria used to identify protected areas would be different, or whether funding levels would be similar to current levels, in the absence of the Nature Directives, was central to the analysis[703].

9.1.2 Main sources of evidence

Only a small body of literature has specifically explored the EU added value of the Nature Directives, e.g. (Born et al, 2015) and some EU level Studies (Romão, 2015; Sundseth and Roth, 2013). Additional literature reviewed covered relevant aspects of EU added value in general[704] (Medarova-Bergstrom et al, 2012), as well as on the benefits arising from the Birds and Habitats Directives, or their challenges in implementation (Crofts, 2014).

The analysis of the Nature Directives' added value and the identification of comparison examples showing the transformational changes and trends triggered by the Directives – is underpinned by analysis of the other four evaluation criteria for this study, the information provided from stakeholders in the evidence gathering questionnaires and the views expressed in the online public consultation.

However, limitations of the evidence and data available need to be acknowledged. While evidence of the effectiveness of the Directives has been analysed (see Section 5), a comparison with the effectiveness of national measures in isolation is not possible, given the lack of scientific control and accurate data of this issue (DEFRA, the UK)[705].

Another limitation relates to the availability of the data, with some of the information necessary to answer this question coming only from a type of stakeholders from few countries who made a concerted effort to provide a comprehensive set of evidence. This resulted in the inclusion of a larger number of examples from those countries, the use of which does not reflect any judgement on the country, and only serves to illustrate the evaluation of the Directives on specific issues.

9.1.3 Analysis of the question according to available evidence

Based on the Commission 'added value test', our analysis was structured on the basis of the three conditions: policy, subsidiarity, and proportionality.

The analysis of the available evidence compiled for this study considered whether the Nature Directives provide a more effective framework and a more efficient system to achieve the EU conservation and sustainable development objectives than those developed by Member States acting in isolation. It also considers the transformational changes triggered by the Nature Directives through the introduction of innovative elements which did not exist under national systems and which would not have resulted without the EU legislation.

[703] Examples used by the Commission in the evidence gathering questionnaires developed within the framework of the project to define the meaning of this question.
[704] European Commission 2015, Better Regulation Guidelines, Commission Staff Working Document SWD(2015) 111 final, 19.5.2015.
[705] While this is recognised by only one stakeholder in the evidence gathering questionnaire (DEFRA, UK), it is applicable to the whole study across all Member States.

9.1.3.1 Added value in light of the policy objectives

Nature has a transnational character, meaning that nature protection cannot be achieved by Member States acting alone or, indeed, without strong international cooperation. Species and their habitats exist across the territory of several Member States (e.g. migratory birds or wildlife habitats that straddle national borders), their interdependent conservation status requiring a coordinated multilateral response for its effective protection. Joint **EU level action** is a more effective way to achieve the conservation objectives of the Union than solely national action, the limited scope of which makes it less effective than EU level action for reasons of scale and effects. The Birds Directive was initially driven by the need to set a protection system for transboundary species, an aim then mirrored by the Habitats Directive.

The role of the Nature Directives in contributing to a more effective protection of biodiversity on the European scale is recognised by most respondents to the evidence gathering questionnaires and to the online public consultation. Multilateral action is essential to conserve shared biological resources and ensure the complementarity of conservation action across different jurisdictions.

9.1.3.1.1 The establishment of the Natura 2000 network

The establishment of the European network of protected areas – Natura 2000 - is considered in the literature and by most stakeholders, to be the change triggered by the Nature Directives that most clearly demonstrates EU added value.

The effective role of protected areas in ensuring biodiversity conservation is highlighted by Crofts (Crofts, 2014), who states that the analysis of land cover change over the last 20 years shows that the impacts of threats to habitats and species - such as agricultural intensification, land abandonment or urban expansion - are clearly less acute in protected areas. Within this context, the Natura 2000 network established by the Nature Directives represents a joint effort by 28 Member States which would not have existed without the EU legislation.

While there were protected areas in Member States, the establishment of the Natura 2000 network has meant the designation of additional protected sites that would not have been achieved without the legislation at such a level or scale. The creation of the Natura 2000 network was based on an innovative approach (Born et al, 2015) which led to the designation of a network of protected areas beyond what existed at a national level at the time of the Directives' adoption. Romao (Born et al, 2015) states that the main aspect of the Natura 2000 Network providing added value is that it is built on a common site selection and designation process across the EU, based on a common methodology, criteria and set of ecological features. The commonality of an approach based on an innovative method and criteria is the clearest indicator that it originates at a level beyond individual Member State action and it could not have been developed by Member States independent action, providing greater ecological coherence than if the networks were organised solely within each Member State (EEA, 2012).

Natura 2000 is a network of sites designated on the basis of scientific information and a 'biogeographical regions' approach, designed to contribute to maintaining or achieving Favourable Conservation Status of habitats and species important at EU level. No other protected areas system exists whose site designation process is based on a biogeographical regional approach and a common scientific methodology covering such a significant number of countries (EEA, 2012). The innovative approach is based on 4 elements:

- Sites are selected on scientific grounds based on information provided by nature authorities or any other stakeholder with the relevant data.

- The 'biogeographical regions' approach defines the list of habitats and species to be protected, as well as the sites to be designated as part of the network. This is recognised as an innovative approach unlikely to have happened without the Nature Directives. Currently, there are nine biogeographical regions in the EU: Alpine, Atlantic, Black Sea, Boreal, Continental, Macaronesian, Mediterranean, Pannonian and Steppic. This approach recognises the differences in biodiversity between Member States.
- The 'notion and definition of "Favourable Conservation Status" (see Box 1 Section 2.3.1) is one of the most distinctive and key aspects introduced by the Habitats Directive in European nature conservation policy' (EEA, 2012). The Habitats Directive introduces this concept as a new standard that harmonises the approach to site designation according to the species' that each site hosts. Most nature authorities consider the introduction and implementation of this concept to be one of the key elements introduced by the Directives, and one unlikely to have existed independently in all Member States
- The Directives go beyond the national 'traditional' nature protection instruments, which were focused almost exclusively on the strict protection of individual species' (Born et al, 2015p 22-23), by requiring joint efforts for halting biodiversity loss through the protection of sites, in order to ensure the conservation of species and habitats endangered or sensitive at EU level (Crofts, 2014). The Directives follow a unique, systematic pan-European approach to the identification of all the significant species and habitats requiring protection throughout the EU, with particular focus on migratory and widely dispersed species and habitats, something which did not previously exist, and which has not been replicated in any other part of the world (Crofts, 2014).

This scientific and regional approach to site designation - based on the concept of Favourable Conservation Status of habitats and species of European importance - has been the rationale for an unprecedented expansion of the protected area network across Europe. According to the EEA, the Natura 2000 network is the most extensive protected area system worldwide (EEA, 2012). It has stated that 'the implementation of the Natura 2000 network has significantly changed the picture of protected areas in the EU Member States, by dramatically increasing the area of sites.' Some literature provides for quantitative data about the impact of the Nature Directives by pointing to the extent of the network of protected areas in Europe resulting from a much greater rate of designation of protected areas than seen previously. For example, the July 2012 Natura 2000 Newsletter credits the Directives for the fact that 'the area protected for nature conservation in the EU has more than tripled' since their adoption[706]. The Natura 2000 Newsletter from January 2015 states that about 20% of the EU terrestrial land and 4% of the total EU marine area is designated for nature protection[707]. While progress in designating marine sites has been slower than on land and still has major gaps, the Natura 2000 network has nevertheless made a substantial contribution to the conservation of marine biodiversity in Europe. Although the current marine protected area is less than the 10% global target under the Convention on Biological Diversity (CBD), the marine sites currently protected in the EU have more than doubled in the last 10 years.

A significant majority of stakeholders stated that the extent of the protected area expansion both in land and in the marine environment would not have happened without the Directives. Although it is difficult to establish the counterfactual to determine the causality between the extent and effectiveness of protected areas in the EU and the adoption of the Directives, judgement can be based on the following:

[706] http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat32_en.pdf accessed 7.12.15
[707] Natura 2000 newsletter, January 2015, at: http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat37_en.pdf accessed 17.02.16 http://ec.europa.eu/environment/nature/info/pubs/natura2000nl_en.htm accessed 7.12.15

- Romao affirms that one-quarter of the EU terrestrial land is protected and designated for nature conservation and 'on average at the EU level, 30% of those areas designated for nature conservation is only designated under Natura 2000' (Born et al, 2015) and is additional to solely nationally protected land. It can be inferred that those sites only designated under Natura 2000 would not have been protected without the Directives. The representative of the EEA states that 40% of land is designated both at national level and as part of the Natura 2000 network (Born et al, 2015). It can be concluded that 'Natura 2000 has therefore led to a 'significant increase in the area of land targeted for biodiversity and nature protection' (Born et al, 2015p 23).
- Stakeholders from several EU countries (e.g. Bulgaria, Croatia, Estonia, France, Hungary and Spain) confirm that the EU nature legislation has resulted in a larger area of protected sites in their countries than would otherwise have occurred. Some examples provided by stakeholders are presented in
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- Box 106 below.

Box 106 Examples of increases in surface of protected area

Bulgaria: Before joining the EU, the surface of the protected areas designated in Bulgaria covered 5% of the country's territory. The scientific site selection process for the establishment of the Natura 2000 network started in in 2002 resulting in a National Ecological Network system covering 34.4% of the national territory.

Cyprus: SPAs currently cover about 27% of the government controlled area of Cyprus. The Nature Directives triggered an increase in the extent of protected area, with the pre-existing protected state forest areas accounting for only 52.8% of the current SPA).

Germany: Before the Directives came into force Germany's strictly protected areas (requiring strict conservation measures with no economic activities carried out within them) comprised 2.5% of the land surface, a figure now standing at about 4.3%. The Natura 2000 sites, most of them not strictly protected, includes 15.4% of the total land surface and 45% of the marine environment. This expansion would not have happened without the Directives.

Estonia: Before EU accession, 10% of Estonian land territory was covered by protected areas. Today, this has risen to 18%, due to the establishment of the Natura 2000 network. Before accession, 82,500 ha of marine area were protected in Estonia, while today 678,000 ha of marine area belongs to the Natura 2000 network.

Romania: Romania's protected areas network existed before accession. The current coverage, at 20% of the national territory, comprises about 14% designated as SCIs under the Habitats Directive (Ioja et al, 2010).

Spain: The increased number and size of protected areas in Spain is recognised by the nature authorities in the evidence gathering questionnaire. The area protected in Spain increased from over 4% before the adoption of the Directives, to 28% after (209,121.50 km²). The authorities confirm that this increase is a direct consequence of the obligation to establish the Natura 2000 network, with evidence provided by the Environmental Profile of Spain published by the Ministry of Environment[708].

- An IEEP study examined terrestrial protected area approaches in eight Member States (Croatia, Czech Republic, Estonia, Finland, France, Germany, the Netherlands and Spain) and found major increases in protected area coverage as a result of the establishment of their Natura 2000 networks in Croatia, Estonia and Spain (Underwood et al, 2014).
- An example can be found in the EEA report on protected areas, where Natura 2000 is compared to the Emerald Network, an ecological network of Areas of Special Conservation Interest (ASCIs) set up by the Contracting Parties to the Bern

[708] http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/publicaciones/pae2012englowresolution23-4-2014_tcm7-328424.pdf accessed 7.12.15

Convention (the Convention on the Conservation of European Wildlife and Natural Habitats). The Emerald Network is conceptually similar to the Natura 2000 network, but it incorporates a wider group of countries, including most of the members of the Council of Europe. The Emerald Network sites are the same Natura 2000 sites for those Bern Convention Parties that are EU Member States. At present, the other countries from Western Europe that implement the Bern Convention and contribute to the establishment of the Emerald Network are: Iceland, Norway and Switzerland. If we take Switzerland as a counterfactual example of what could have happened in EU Member States without the Nature Directives but with the Bern Convention system, the 2012 EEA report on protected areas states that Switzerland currently has designated 37 sites covering 642.2 km² and 1.6% of the national territory (EEA, 2012). It is very likely that, without the Directives, the trend of designation of protected areas in most EU Member States would have been similar to the situation in Switzerland. At present Natura 2000 coverage in EU Member States reaches highs of 38% of Slovenia's land area designated (7,684.29 km²), 36% of Croatia (25,953.56 km²) and 35% of Bulgaria (41,048.10 Km²), and 27% of Spain (209,121.50 km²). Lows of 8% in Denmark (22,646.54 Km²) and the UK (94,969.30 km²) remain, nonetheless, significantly higher than the protected area of Switzerland[709].

The effectiveness and impact of the Natura 2000 network has been discussed in Section 5 of this report. It has helped to protect the species and habitats for which sites were designated, and in so doing has helped to conserve a wider supply of ecosystem services (Baldock et al, 2013). Crofts also refers to studies indicating that common bird and bat species are more abundant in Natura 2000 than outside the network and those sites also benefit species that are not targeted by the Directives. Furthermore, one relevant study (Donald et al, 2007) shows that there is a causal link between the Directives (regarding the proportion of land designated as SPA) and species status within the EU-15. The trend identified considers that for every additional 1% of land area designated, the population trend of a species increases by 4% across all species for non-Annex I species and by 7% for Annex I species.

In brief, there is robust evidence showing that the Nature Directives, through the establishment of the Natura 2000 network, triggered significantly greater protected area coverage, which would likely not have existed without the legislation, given the innovative elements that are at the heart of its development and the unprecedented scale of the change achieved in the protected area network expansion. This joint effort proves to be a more effective way to achieve the conservation objectives of the Union.

9.1.3.1.2 Natura 2000: a coherent network for the whole EU territory

The added value of the Natura 2000 approach is strengthened by the intrinsic objective to build a network that is 'ecologically coherent'. One of the main objectives set out in the Habitats Directive is to build an 'ecologically coherent' network, i.e. one that includes sufficient sites both in number and area, distributed over a wide geographic area, and representing the full range of variation of the habitat types and species mentioned in the Habitats Directive (EEA, 2012). An important additional feature of ecological coherence is 'connectivity' between the sites of the network (EEA, 2012). The management of landscape features of major importance for wild fauna and flora can act as stepping stones or ecological corridors for migration, dispersal and genetic exchange of wild species (Articles 3(3) and 10 of the Habitats Directive).

While it is not yet well implemented, the added value of the Nature Directives lies in the establishment of a concept of transboundary connectivity that has facilitated or triggered action at national level, yet would not have happened without the Directives. The EEA

[709] Terrestrial network status end 2014 in Natura 2000 barometer.

has looked into transboundary connectivity triggered by the Directives (EEA, 2012) and has concluded that connectivity - both spatial and functional - across national borders is relatively good, but the overall coherence of the network could be further improved. The reasons for the lack of implementation of this objective are discussed in the Efficiency Chapter (see section 6) to this report.

As described under question S.1 (see section 5.1), the concept of a coherent network has not been fully applied to-date and, therefore, has not achieved all of the potential added value of the Directives. Specialised literature states that the Directives have failed to ensure that Member States fully implement wider countryside and connectivity measures (Crofts, 2014). Examples of initiatives aiming at establishing coherence networks are described in Box 107 below.

Stakeholders providing these examples recognised that the development of these networks had been instigated by the implementation of the Nature Directives. While there is no evidence to determine whether the Member States would have taken such action at national level without the Directives, it is unlikely that the action would have been carried out at the same pace and scale of ambition (influenced by the extent of the Natura 2000 network of protected areas itself).

Box 107 Best practice – coherence of the network

- In 2010 France set up the 'green and blue network' (Trame Verte et Bleu) to enhance connectivity between the protected areas established by the Nature Directives. This tool is mentioned in several pieces of legislation (Loi 2009), environmental code, building code, local government code, rural code, forestry code, and also included in other national initiatives (e.g. the development of the 'regional ecological coherence schemes'). This network of corridors also aims to provide ecosystem services, such as raw materials, pollination, water purification and flood prevention.
- The Netherlands has established the National Ecological Network (NEN) in 1990, which aims to create a comprehensive network consisting of Natura 2000 sites and other protected areas with ecological corridors. The NEN is well-developed in the Dutch rivers and has resulted in an increase in rare plant and animal species, but farmland and meadow breeding bird species are still in strong decline[710].
- In Spain, the approach to selection and designation of the Natura 2000 sites was to define broad sites that would include core conservation zones, together with areas for connectivity between them. Additional areas to ensure connectivity between the Natura 2000 sites are being developed. In this way, the region of Andalusia has developed their own Director Plan for the improvement of Ecological Connectivity in Andalusia, with the objective to ensure the territorial coherence of the Natura 2000 network and the conservation of Andalusian biodiversity in the long-term. Similarly, the Basque Country has developed the Network of ecological corridors of Euskadi. A regional network of ecological corridors between Natura 2000 sites with forest and agroforestry systems was established in 2005 and these are used as reference information in environmental assessments of plans and projects.

Source: Information in evidence gathering questionnaires

The Nature Directives added value resides on the establishment of a concept which has provided for transboundary connectivity that would likely not have happened without the Directives and it has facilitated or triggered action in Member States at a pace and scale that would not have happened without the Directives.

9.1.3.1.3 Species protection

The system of species protection established by the Nature Directives provides added value, even though national systems of species protection already existed before the Directives were adopted ((Born et al, 2015) and several stakeholders)[711].

[710] http://rijninbeeld.nl/?p=607 accessed 7.12.15
[711] For example, stakeholders in Finland, France, the Netherlands, Slovakia, the UK.

Improvement of national hunting legislation and control of illegal hunting practices

Specialised literature (Born et al, 2015 Schoukens, Species protection in the EU) and stakeholders (NGOs evidence gathering questionnaires, e.g. BirdLife Europe and Nature authorities, e.g. Cyprus, Malta, Spain, the Netherlands, Sweden, Poland) state that the system of species protection established by the Directives has led to the strengthening of national legislation, particularly with respect to hunting and the control of illegal hunting practices. The hunting seasons for migratory birds are now consistent throughout the EU territory and, thus, more effective protecting species.

For example, over the years the implementation of the standards of protection in Malta has resulted in the phasing out of various practices, such as a three-month spring hunting season, the trapping of finches in 2008, and the trapping of Turtle Dove and Common Quail in 2010. Though some of these practices are nowadays permitted via derogations, the implementation of the Birds' Directive in this case has facilitated the scrutiny of these practices[712].

The evidence reviewed shows that the establishment of a harmonised system in all EU Member States with such a level of protection would not have happened without the Directives.

Over the years, the establishment of these rules has been subject to a lot of opposition from certain interests and sectors in some Member States (e.g. France, Malta, Spain and Sweden), with the difficulties in implementation in many Member States demonstrated by the high number of infringements and court cases. Their establishment and implementation in those countries would not have been possible without a third party intervention and peer review action.

The differences between EU and non-EU Member States on the implementation of species protection rules have been identified, enabling the establishment of a spatial comparison and a counterfactual situation (without the legislation) evidencing the causal effect of the Directives. For example, a study comparing the situation in countries along the Adriatic Flyway concludes that the implementation and control of legal standards for the protection of birds are stronger and more effective in EU Member States than in countries that are non-EU Members[713]. In those countries, hunting laws are weaker and there is inconsistent implementation and control of the existing laws. By contrast, the hunting association in Sweden believes that the existing population statistics show that the EU nature legislation has caused a negative trend for large carnivores, and that the species which have increased were already increasing before their EU membership in 1995 (Swedish Association for Hunting and Wildlife Management).

Conservation results

Similarly, literature provides another spatial comparative example that helps to establish a counterfactual situation, showing that the species protection system established by the Directives provides conservation results that would not have been achieved without them.

The 2015 State of Nature report shows that while there are improvements in the rate of some habitats and species at unfavourable conservation status the decline of some habitats and species has not been halted, with most species of Annex II of the Habitats Directive having an unfavourable-inadequate status (42%) or unfavourable-bad status (18%), in addition to which, 17% of bird species are threatened, with a further 15% near threatened.

[712] NGOs Malta.

[713] http://www.euronatur.org/Press-Releases.412+M5815d32f5dd.0.html?&cHash=37e22b95f9e19216f9f99d052ce2a2ab, accessed 7.12.15

Although it is too early to quantify the impact of the measures taken under the Nature Directives, evidence mentioned by stakeholder NGOs suggests that there have been improvements (Donald et al, 2007) and that the conservation status of species protected by the Directives is better than that of those species not protected (see Box 108 below)[714].

Box 108 Conservation status of species protected by the Directives

(Donald et al, 2007) provide specific data that can be used as a counterfactual, as it looked at trends in the populations of Annex I and non-Annex I bird species comparing data from two time periods (1970 – 1990 and 1990 – 2000) both within and outside the EU. The study concludes that:

In the EU-15, the trend for the populations of Annex I bird species was lower than non–Annex I bird species during the period 1970–1990. However, this pattern was reversed in 1990–2000, when Annex I species had a significantly higher population trend than non–Annex I species. In addition, while between 1990–2000, species listed on Annex I fared better on average than non-Annex I species within the EU-15, that pattern was not followed outside the EU-15. It can be concluded that the Nature Directives led to a reversal of the decline within the EU-15.

Outside the EU-15, trends of Annex I species improved significantly compared to those of non–Annex I species during the period 1990-2000; however, the trend of Annex I species was not more positive than non–Annex I species trends in 1990–2000. The difference in trend between Annex I and non–Annex I species was significantly greater in the EU-15 than in non-EU-15 countries in 1990–2000, while it did not differ in 1970–1990, probably due to the influence of the Directives.

The Review of the implementation of 17 EU Species Action Plans in 2010 of threatened birds in the European Union (2004-2010) developed by BirdLife International for the Commission provides another example, showing that well-resourced and coordinated implementation of the Nature Directives in Member States have delivered positive species recovery results which were not found in countries outside the EU Species' improving their population trends in the EU included the Fea's Petrel, Zino's Petrel Madeira, Eastern Imperial Eagle Aquila Heliacal, Madeira Laurel Pigeon, Columba Trocaz, Azores Bullfinch, Pyrrhula Murina, and Eleonora's Falcon.

In addition, several stakeholders refer to examples of species recovery which have been triggered by the Directives. In addition, many individuals and populations are increasing outside of the protected areas set aside for wildlife conservation due to the improved public perceptions and protective legislation triggered by the Directives[715].

Box 109 Examples of species recovery triggered by the Directives

- Despite pessimistic forecasts, Europe's large carnivores are returning to traditional areas of expansion. (Chapron et al, 2014) report that sustainable populations of Brown Bear, Eurasian Lynx, Grey Wolf, and Wolverine persist in one-third of mainland Europe.
- SPA designation can help to conserve species not listed on the Annexes, as demonstrated for birds in Latvia (Opermanis et al, 2008), and for gypsophilous plants in Spain (Martínez-Hernández et al, 2011).
- The extinction of the small seabird Zino's Petrel from Madeira (*Pterodroma madeira*) was prevented by specific action during 1994-2004, including the designation of 'breeding sites' as SPAs under the Birds Directive.

In conclusion, the species protection standards set up under the Directives have led to the control of illegal hunting practices and to the reversing of declines across a range of bird species at a level that did not exist before the implementation of the Directives. Evidence from examples of the situation in countries outside the EU demonstrates that such levels of protection would likely have been impossible if Member States were acting individually, without the requirements of the Directives.

[714] National NGOs in the UK, Denmark, and EU level: FoE Europe.
[715] NGOs, IUCN, FoE, World Wide Fund for Nature (WWF).

9.1.3.1.4 The concept of Favourable Conservation Status and improved monitoring

The 'notion and definition of "Favourable Conservation Status" (see Box 1 Section 2.3.1) is one of the most distinctive and key aspects introduced by the Habitats Directive in European nature conservation policy' (EEA, 2012). In simple terms, Favourable Conservation Stats is described as '*a situation where a habitat type or species is prospering (in both quality and extent/population) and with good prospects to do so in the future as well'* (European Commission, 2011f). The Habitats Directive introduces this concept as a new standard that leads to a harmonised approach throughout the EU for measuring biodiversity status, and has enabled Member States to adapt their actions and priorities since its entering into force (Romão, 2015).

This concept has been instrumental for the implementation of the measures required by the Directives, i.e. site designation (as described above), site management, species protection measures and monitoring. Most nature authorities consider the introduction and implementation of this concept to be one of the key added value elements introduced by the Directives. In all likelihood, such an innovative concept would not have existed without the nature legislation, almost certainly not in all Member States. It has thus been transformational in setting clear, consistent and scientific goals for nature conservation at a sufficient level of ambition, taking into account that the implementation of the FCS concept provides a certain degree of flexibility in the actions required at national and site level (Simpson, 2015).

Despite this added value, the concept has been challenging to apply over the years and the absence of defined Favourable Conservation Status standards has occasionally led to different methods in Member States and further guidance and harmonisation in the implementation of this concept is still needed. This has hindered optimum impact and led to overly risk-averse decisions in some instances, whereby the status quo is sought by protecting every individual, rather than trying to achieve Favourable Conservation Status of the population concerned – such as the case for the Great Crested Newt in the UK (Simpson, 2015). However, examples of good practice that avoid such situations and produce better and more efficient conservation outcomes are given in Section 6.5, and the effects of the knowledge gaps on efficient implementation of this concept are discussed in section 6.8.

Box 110 Common standards set out in nature legislation

Having common standards set out in nature legislation across the EU - such as a common understanding of what Favourable Conservation Status means in practice - has improved the development of conservation measures and raised the level of ambition. The application of Favourable Conservation Status has improved the way in which monitoring has developed and has been heavily driven by the Directives,
Source: evidence gathering questionnaire DEFRA, UK.

The introduction of the concept of Favourable Conservation Status has contributed to better steering and to a more scientific approach to conservation. The common solid methodology for evaluating Favourable Conservation Status has contributed to a better knowledge base and has improved and added consistency to the difficult task of estimating the status of biodiversity, both in terms of populations and types of nature.
Source: evidence gathering questionnaire, nature authorities, Sweden.

This approach has resulted in **improved monitoring procedures**. Examples provided by some stakeholders describe the added value of the Nature Directives where they have acted as drivers for improving monitoring of the Favourable Conservation Status of habitats and species. For example, the Directives have improved the monitoring of cetacean bycatch and the coherence between nature legislation and fisheries policy.

Box 111 Examples of monitoring measures

Denmark: The nature monitoring and surveillance system, NOVANA, was introduced in Denmark to meet the requirements of the Nature Directives and has been implemented and streamlined to comply with their provisions during the past 10 years, http://naturstyrelsen.dk/vandmiljoe/overvaagning-af-vand-og-natur/novana-program/as

Estonia: Estonian monitoring programmes to control the status of habitats and species have evolved significantly. The current monitoring system has been in place in Estonia since 1994, with its importance increasing as a direct result of the requirements of Article 11 of the Habitats Directive.

The UK: The UK cetacean bycatch monitoring scheme was developed and funded by its Government in order to fulfil the commitments under both the Habitats Directive and Council Regulation 812/2004. Without the Directive, this programme is unlikely to have been developed. The programme continues to inform assessment of the impact of fisheries on protected species, as well as supporting trials and development of mitigation plans and measures.

Source: Evidence gathering questionnaires of nature authorities in Denmark, Estonia and the UK

The Nature Directives have introduced the concept of Favourable Conservation Status, a transformational approach in establishing the standards for decision-making on the designation and management of sites or the protection of species, as well as improving the monitoring of habitats and species in the EU. The introduction of such a concept would not have happened without the nature legislation.

9.1.3.1.5 Increased knowledge

The EU nature legislation has led to increased knowledge on biodiversity, given the obligation to implement the Nature Directives and the consequent need to have robust information and data on habitats and species in each of the Member States. Before the adoption of the EU legislation the information held by Member States was not always systematic or comparable.

The increase in the scientific knowledge on habitats and species was triggered by the Directives whose implementation, in particular the Natura 2000 site selection process, required the gathering of previously unheld scientific information (highlighted by several stakeholders)[716]. According to most nature authorities, the Nature Directives have contributed to the development of knowledge specifically in respect of the distribution of habitats and species, sensitivity to disturbance of species, monitoring of habitat types and, to a lesser extent, to knowledge of species and their requirements (e.g. the Netherlands nature authority). Other stakeholders consider the Directives to have triggered the collection and application of useful knowledge on ecosystem services and the economic value of nature (Nature authorities, e.g. Sweden, NGOs in the UK).

Stakeholders and the literature provide evidence that the implementation of the Nature Directives triggered the development of inventories of habitats and species and site mapping, in some cases of entire countries, as in the Czech Republic or Spain (Rivas-Martinez and Peans 2003)(Evans, 2012; Hartel et al, 2009). Many countries had to launch nationwide surveys, biological inventories and mapping of habitats and species in order to identify the sites to be included in the network, and their subsequent monitoring[717]. This has led to a much better knowledge of their current status.

[716] NGOs and nature authorities.
[717] http://www.kp.org.pl/n2k/pdf/19.pdf accessed 7.12.15

Box 112 Examples of increased knowledge

The **Spanish** scientific and technical system classifying habitats and evaluating their status was only developed under the requirement of the Habitats Directive[718]. It is considered of particular value due to the amount of information it contains from NGOs.
Source: IUCN evidence gathering questionnaire

In **Germany** the mapping of habitats and species for the designation of Natura 2000 sites led to the discovery of White-clawed Crayfish in the Dreisam valley (*Austropotamobius pallipes)* which is a species of the Annex II and V of the Habitats Directive (FoEE*).*

The **Estonian** authorities recognise that little data existed about some of the Habitats Directive species (e.g. Coleoptera, bats) before accession and the application of the Nature Directives. Populations and ecology studies of large carnivores has significantly increased during and after accession. Without the Directives, knowledge on certain species and habitats would not have been developed, and there would have been less cooperation with neighbouring countries (exchange of experience on preservation and restoration of habitats, monitoring).

Some Member states like Estonia, Poland, Spain, and Bulgaria used EU funding to support the development of inventories. The use of this public funding has triggered a higher degree of availability of the data than prior to the Directives.

One of the key reasons for slow progress in marine site designation to-date has been the lack of knowledge and information, for example on the distribution of EU protected marine habitats and species at a level of detail required to enable the identification of sites, appropriate management and assessment of impacts. Several Member States have made significant efforts to carry out marine surveys in order to assist with the identification and selection of suitable sites, a number of which have been co-financed through the EU LIFE fund (e.g. INDEMARES). Nevertheless, conducting offshore marine surveys continues to be a considerable and costly challenge[719].

Knowledge has also been increased through some EU level initiatives. The European Commission has developed the public 'Natura 2000 viewer'[720] which makes it possible to explore Natura 2000 sites in every part of the EU. Built on Geographical Information System (GIS) technology, the public viewer is an interactive and user-friendly tool that allows the use of different types of backgrounds (street maps, satellite imagery, biogeographical regions, Corine Land Cover, etc.). This tool provides access to the location of all sites and their related information on species and habitats of interest. The tool is intended to raise awareness of Natura 2000's rich assets amongst the general public, as well as provide a useful instrument for developers, land use planners, landowners, government authorities, NGOs, researchers and educators, among others. The Commission has also developed the Web Map Services (WMS) which is a standard protocol for serving online geo-referenced map images. The Web Feature Services (WFS) is a standard protocol allowing online requests for geographical features, which can subsequently be used for spatial analysis or mapping.

While information and knowledge has been improved, the knowledge gap continues to have an impact on the effectiveness of the Directives' implementation, in particular for marine site designation (see section 6.8 for discussion). For the effective application of species conservation measures, more information and knowledge on the distribution of the species, their status, trends and possible threats is required (Schoukens and Bastmeijer, 2014). This view is supported by evidence from several stakeholders, highlighting that problems with Annex IV species have been exacerbated by inadequate in-

[718] http://www.magrama.gob.es/es/biodiversidad/temas/espacios-protegidos/red-natura-2000/rn_tip_hab_esp_bases_eco_acceso_fichas.aspx accessed 7.12.15
[719] Natura 2000 Newsletter, issue 37, Janualy 2015. http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat37_en.pdf accessed 7.12.15
[720] http://ec.europa.eu/environment/nature/natura2000/access_data/index_en.htm; http://www.eea.europa.eu/themes/biodiversity/interactive/natura-2000-european-protected-areas; http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000/viewer_leaflet.pdf all accessed 7.12.15.

formation on their location, as this has prevented developers from identifying and avoiding potential conflicts early in the planning process (DEFRA UK).

In brief, the added value of the Directives in relation to the development of scientific knowledge is beyond doubt. Robust evidence demonstrates that the growth of knowledge has been triggered by the Directives, at a level or scale of improvement that would not have been achieved by individual action from Member States. The Directives' effect continues, as further knowledge is required to ensure full implementation of the Directives.

9.1.3.2 Added Value in terms of the principle of 'subsidiarity': who should act

9.1.3.2.1 Shared competence and subsidiarity principle

The Nature Directives form part of the EU policy on Environment which is of shared competence between the EU and its Member States (Article 4 of the Treaty on the Functioning of the European Union (TFEU)). The subsidiarity principle is applicable to the Directives, therefore the EU shall act only if and insofar as the proposed action cannot be sufficiently achieved by Member States in isolation, and added value can be provided if the action is carried out at EU level for reasons of scale or effects to be achieved. Subsidiarity is a principle which governs the choice of who should act, in situations with potentially more than one appropriate actor.

The Commission has introduced procedures to assess compliance with the principles of subsidiarity and proportionality in the decision-making process to check if EU level action is legitimate and necessary[721]. These procedures are applicable to all shared competence policies since the 1993 Maastricht Treaty. While the Nature Directives were adopted before that date, subsidiarity as a principle already existed implicitly in EU environment policy through the Single European Act adopted in 1986. Its Article 130r(4) TEC required the EU to '… take action relating to the environment to the extent to which its objectives … can be attained better at a Community level than at the level of the individual Member States'[722].

In other words: from the outset, the Directives' adoption has been based on the requirement that they provide added value.

9.1.3.2.2 Transformational change: site protection legal system

The Nature Directives have generated major transformational changes in the EU legal frameworks for nature conservation, establishing a stronger and more holistic legal system than most of the existing national systems. As well as providing added value by complementing the national systems of species protection already in place before the Directives were adopted with a site protection approach in a coherent way ((Born et al, 2015), they also strengthened and enhanced the precision of the site protection system. The majority of respondents to the UK Government's Review of the Balance of Competences: Environment Report stated that 'EU competence has increased environmental standards in the UK and across the EU and that this has led to improved performance in addressing several environmental issues' (HM Government, 2014b).

A unique aspect of the Natura 2000 network is the comprehensive set of provisions introduced by the Habitats Directive establishing a **strong site protection system** based

[721] European Commission 2014, Annual Report 2013 on subsidiarity and proportionality, Report from the Commission, COM(2014) 506 final, 5.8.2015.
[722] European Commission 2014, Annual Report 2013 on subsidiarity and proportionality, Report from the Commission, COM(2014) 506 final, 5.8.2015.

on conservation measures and assessments of impacts for projects likely to have a significant effect on the sites (EEA, 2012). This EEA report states that 'implementation of the Natura 2000 network has significantly changed the picture of protected areas in the EU Member States, […] Natura 2000 has also forced countries to strengthen their management and protection systems for biodiversity conservation'. This report concludes that while 'pre-existing nationally designated areas that focused on biodiversity conservation have been broadly used in support of a Natura 2000 designation … the Natura 2000 network is not restricted to nature reserves, and is based on a much broader principle of conservation and sustainable use'.

This has been confirmed in the discussions during the National Missions, where it was recognised that while most Member States had a pre-existing network of protected areas,[723] the system under Article 6 of the Habitats Directive is clearer, more precise and ensures higher protection than the existing national systems. In most Member States the Nature Directives triggered changes in existing laws to comply with the harmonised protection standards for site protection, thereby increasing the legal certainty for the achievement of nature conservation objectives.

Box 113 Examples of improved protection due to the Directives

Cyprus: The first Nature Law in Cyprus, other than the legislation regulating state forests, was implemented in 2003 to transpose and ensure implementation of the Nature Directives.
Source: Questionnaire Cyprus nature authorities

Germany: While Germany's nature conservation laws at federal and länder level were mainly created before 1992, the Directives' introduced changes (biogeographic approach, cross-border species and habitats protection) and a higher standard of site protection. The resistance to fully transpose the Directives into national legislation meant it took almost 20 years to be regarded as complete), and is regarded by stakeholders as evidence that the German authorities would not have introduced such an innovative and modern concept of nature conservation without the incentive of the legally binding directives.
Source: Questionnaire German NGOs.

Poland: The 2001 Environmental Protection law, the so-called Environmental Code, set out general principles of environmental protection, including the polluter pays principle, and the precautionary principle, as well as providing for a policy on environmental permitting. However, this law was only complemented by the Nature Conservation Act adopted in 2004 as a result of Poland's accession to the EU.
Polish nature authorities consider the EU nature legislation to have brought changes to the existing legislation, in particular the innovative approaches such as the Appropriate Assessment (AA) procedures of all activities and development projects affecting the Natura 2000 sites, or the requirement to adopt management plans. Those measures were not considered possible at national level without the EU law.
Source: Polish nature authorities and Polish NGOs' evidence gathering questionnaires; OECD Environmental Performance Reviews, Poland 2015 (OECD, 2015).

UK: The UK national protected areas (Sites of Special Scientific Interest (SSSIs) in England, Scotland and Wales and Areas of Special Scientific Interest (ASSIs) in Northern Ireland) were introduced in national legislation in 1949, but had limited effects on many sites until 1981, as they provided little protection from development and damage caused by changes in agricultural and forestry management. As a consequence, 10–15% of SSSIs were damaged each year. A quarter of England's nationally designated sites were damaged from 1987 to 1993. Changes to the Wildlife and Countryside Act 1981, driven by the requirements of the Birds Directive, have led to a marked improvement in SSSI protection. By the early 1990s, the area of SSSI being lost per year had fallen to below 0.005% and the area subject to short-term damage to around 2–3% per year. Since 2007, only 139 ha, or 0.01%, of the total SSSI network has been lost as a result of development or land-use change[724].

[723] Discussed in the National Missions to France, the Netherlands, Poland, Spain and the UK.
[724] *Source:* The nature and wellbeing act. A green paper from the wildlife trusts and the RSPB. http://issuu.com/wildlifetrusts/docs/nature_and_wellbeing_act_final?e=4558523/9971297#search accessed 17.02.16

Literature and most stakeholders recognise that the standards of protection for Natura 2000 sites are stronger than those existing in national **systems of site protection** at the time of the Directives' adoption and they have been appropriate in the light of pressures on both habitats and species. The Nature Directives have raised the level of protection granted to habitats and species in protected areas. The comprehensive set of provisions concerning conservation measures and assessment of impacts of projects likely to have significant effects on the sites, is introduced through **Article 6** of the Habitats Directive. Literature confirms that the 'Habitats and Birds Directives have added a layer of protection for nature in the UK above and beyond that provided in previous national legislation' (Baldock et al, 2013). In order to promote implementation of these provisions, the mandatory value of the Directives has been complemented with the Commission's extensive guidance, from legal interpretation of Article 6 to practical guidance on specific sectors like wind, energy, port developments, etc. In addition, as stated in the State of Play section 3.3 of this study, the European Court of Justice (CJEU) has issued several rulings that further clarify the legal interpretation of these provisions (EEA, 2012).

The specialised literature considers this comprehensive set of rules under Articles 6(2), (3) and (4) to be **an innovative approach** (Born et al, 2015) which did not previously exist in national legal systems and, given the associated implementation problems, most likely would not have existed without the Nature Directives. These standards play an important role in preventing environmental damage, and its harmonised implementation provides EU added value. They constitute a stronger and more holistic legal system than that existing in most Member States prior to the adoption of the Directives. This system ensures harmonised protection standards for site protection which promote a consistent approach to socio-economic considerations within the respect of biodiversity objectives. These harmonised rules ensure a level playing field for business that can only be prevented by the lack of proper enforcement leading to differences in Member States' implementation.

The examples provided by stakeholders show that the establishment of the protection system would not have happened without the Directives, thereby confirming the Directives' added value.

Box 114 Examples of stronger protection systems due to the Directives

Cyprus: SPAs currently cover about 27% of the government controlled area of Cyprus. All of these sites now have a protection status which they did not have before, one more precise and stronger that the protection system provided to the national system protecting state forest areas. The Nature Directives have played a central role for the protection of habitats in Cyprus - outside of forested areas - that are important for birds species like *Garigue* and *Maqui*, habitats linked to agriculture activities.

The **nature authorities from the Netherlands** state that the objectives of the National Ecological Network (NEN) are more broadly formulated than those of the Nature Directives. The objectives of the NEN relate to biodiversity conservation that can be compensated or interchanged, as well as aspects such as ecosystem services and recreation. In this respect, the Nature Directives' protection regime goes much further and is stricter than the general regime for the NEN, giving more protection to species and habitats.

The **Spanish nature authorities** evidence gathering questionnaire response states that the absence of the Nature Directives would have led to lower protection standards for the protection of sites against damage from development projects. Given the economic development of Spain since joining the EU, the absence of protection standards would have put the rich existing Spanish biodiversity at risk. This statement is confirmed in both questionnaires from nature authorities and NGOs.

UK: The standard of protection from potentially damaging development projects that is applied to UK national protected areas (SSSIs and ASSIs not included in the Natura 2000 network) remains lower than that afforded to Natura 2000 sites under the Birds and Habitats Directives. This has been illustrated by a number of cases where potentially damaging developments of certain activities on (non-Natura 2000) SSSIs have been permitted under circumstances which would not

have complied with Natura 2000 requirements. Several such examples are: housing development at Lodge Hill SSSI in Kent and Rampisham Down in Dorset and Canvey Wic in Essex, where a road was built through the SSSI and it is claimed that the proposed compensation has not been enforced (UK NGOs)[725][726].

The case of Strangford Lough SPA in Northern Ireland shows that the Habitats Directive has been a legislative driver enabling considerable progress in achieving the protection needed for the unique and valuable Horse Mussel reefs for which the SPA was designed. Such protection would not have been provided under national jurisdiction (Baldock et al, 2013).

The Directives also fostered a practical response to managing urban expansion in the Thames Basin Heaths SPA, in the form of a sub-regional strategic assessment. In principle, all applications for residential development close to the SPA would need to be screened to establish whether an AA was required, due to the adverse impact on the populations of ground and near-ground nesting bird species for which the site had been classified. As this assessment was required under the Birds Directive it is unlikely that this would have occurred had the site held only an SSSI under national legislation. Specific standards were defined, determining when to proceed without the need to undertake an AA. The standards applied were deemed to ensure that such developments would not be likely to have a significant effect on the integrity of the SPA. These measures resulted in consistency among the local authorities involved and provided reasonable certainty that housing developments either individually or in combination would not adversely affect the Thames Basin Heaths (Baldock et al, 2013).

The Nature Directives' added value in providing a comprehensive set of rules for site protection that is stronger and more precise than the existing before their adoption is broadly confirmed by evidence. Furthermore, it is considered that a system providing such a level of protection implemented at the scale of all EU Member States and providing a level playing field for operators in the EU would not have happened without the Directives. The high number of reactions and infringement and case law generated by these provisions, mainly at the early stages of implementation, also demonstrate that such a system would not have easily been introduced in Member States and without the impact of the Directives and the state of EU biodiversity today would probably be worst.

9.1.3.2.3 A level playing field based on harmonised rules

The 2013 Report on the influence of EU policies on the environment (Baldock et al, 2013) refers to the setting of environmental standards equally applicable to operators in all EU Member States. This legislation is an important element in seeking to ensure that one Member State does not gain competitive advantage over others through the adoption of lower environmental standards, and that populations of migratory species are not adversely affected throughout their range by a Member State allowing damaging development.

The Nature Directives' set of provisions provide EU added value in ensuring an EU level approach to site protection rules applicable across Member States and operators. If the intervention were limited to national or local level, it would be less effective, with the risk of different standards of protection between Member States (Medarova-Bergstrom et al, 2012).

Some stakeholders (See Box 115 below) have strongly stated that an alternative approach based on different nature protection rules across the EU Member States could compromise the achievement of a single market, and that different legal and procedural rules for business and planning would lead to increased legal, administrative and compli-

[725] Royal Society for the Protection of Birds (RSPB), Lodge Hill, Chattenden Woods, Kent, available at: http://www.rspb.org.uk/whatwedo/campaigningfornature/casework/details.aspx?id=tcm:9-317476 accessed 17.02.16
[726] The Wildlife Trusts, Save Rampisham Down, available at: http://action.wildlifetrusts.org/ea-action/action?ea.client.id=1823&ea.campaign.id=35104 accessed 17.02.16

ance costs. The lack of EU Nature Directives could lead to Member States using deregulation to gain a competitive advantage, thus negatively impacting the level playing field for businesses. Businesses support EU level intervention on nature because of the advantages that this brings for the single market and environmental protection. While some business have traditionally argued the strictness in the implementation of those measures in some Member States, the fact of having harmonised rules applied to all operators in all Member States is generally welcome by the business sector.

Box 115 Examples from stakeholders in favour of common standards

ESPO has cooperated with DG Environment in the development of the Guidelines for the interpretation and implementation of the Directives in estuaries and inland waters, which is considered a constructive exercise towards reducing uncertainty.
Source: ESPO evidence gathering questionnaire

The Renewables Grid Initiative (RGI): The members of this initiative state that having a common and stable nature legislation framework is critical for their business, as the development of the internal energy market and the need to integrate renewables requires building appropriate grids, which, like many other major infrastructures, can have adverse effects on wildlife and nature. Stakeholders from this sector state that without EU nature legislation there would be a patchwork of regimes to comply with, creating more uncertainty in the applicable legal framework and bringing additional risk to investors[727]. It would be more difficult to agree project timelines, due to the uncertain situation of the planning and permitting process, while constant changes in legislation would create uncertainties in the short term and lead to additional delays in projects. Continuity in the legal framework is viewed as valuable in itself when considering the urgent need to develop the electricity grid. Literature provides evidence of the challenges associated with the lack of clear legislation[728].
Source: RGI evidence gathering questionnaire

The **extractive industries sector** considers an integrated EU approach - resulting in harmonised policies, including clear procedures, clear timing and obligations - to be critical to ensuring a level playing field, especially for companies with operations in various EU countries.
Harmonised and timely implementation is also crucial to success (IMA evidence gathering questionnaire) but is not always achieved. The responses from representatives of this sector stated that lack of harmonisation in the implementation hampers a level-playing field. They point to situations were pragmatism and public consultation do not prevent economic activities, while, in other countries, rigidity and lack of dialogue have led to Natura 2000 areas being no-go areas, putting existing activities at risk and preventing new economic developments
Source: UEPG evidence gathering questionnaire.

The 2013 report (Baldock et al, 2013) also refers to the role of the CJEU in harmonising the interpretation of the Directives and improving the understanding of the Directives' requirements and implications for Member States.

9.1.3.2.4 Improved cooperation at global level

The added value of the Nature Directives **in strengthening international commitments** at a global level on habitats and species protection, in particular for migratory species, is recognised by stakeholders and literature. The importance of the Nature Directives' conservation policy is fundamental for biodiversity conservation worldwide because it **exemplifies** an almost 30-year transnational policy-making process at a continental scale (Bromley, 1997) (Dimitrakopoulos et al, 2004).

Actions taken by Member States to fulfil their obligations under the Nature Directives contribute both to **ensuring compliance and to strengthening the commitments** made by Member States under International Agreements. The soft nature of the Interna-

[727] Members of the RGI: Tennert (Transmission system operator (TSO) in Germany and the Netherlands), 50Hertz (TSO, Germany), Elia (TSO, Belgium), Swissgrid (TSO, Switzerland) Terna (TSO, Italy) Statnett (TSO, Norway) and several NGOs, WWF, BirdLife Europe, RSPB, Legambiente, CAN Europe, FOE Scotland.
[728] http://www.oekom.de/nc/buecher/gesamtprogramm/buch/umweltschutz-in-der-ddr.html

tional Agreements is reinforced by the higher standards of protection and enforcement of EU legislation. In practice, EU enforcement powers had a positive impact on site and species protection in Europe.

Box 116 Examples of improved cooperation

Greece: In its 2002 report to the Ramsar Convention, Greece highlights the significance of the inclusion of all of its Ramsar Wetlands of International Importance in the Natura 2000 network. This ensures that AAs of activities affecting those sites will be undertaken, and that greater public participation will be encouraged, including via the implementation of LIFE Nature projects. It also ensures that traditional management practices will be promoted via the agri-environment measures.

The CBD: The implementation of the Aichi Target 11 of the CBD to protect at least 17% terrestrial and 10% marine area is mainly implemented through the Nature Directives. Since the CBD came into force in participating countries in 1993, the number of protected areas worldwide has almost doubled, and the surface area of all land and seas with protected status has increased by about 60% (EEA, 2012). The synergy between the Convention and the Nature Directives is recognised as according to several stakeholders (e.g. Croatian NGOs, and Hungarian nature protection authorites), the extent of protected areas goals would not have been reached in any of those countries without Natura 2000. The EU and its individual Member States are all signatories to the CBD and are therefore committed to meet their obligations under the Aichi Target. The Nature Directives constitute an important means of doing so.

The Bern Convention-Site protection: The Directives have also impacted the development of the 19xx Bern Convention. Although neither of the Directives are explicitly mentioned by the Bern Convention, the Birds Directive was designed to mirror the Convention in many respects (Evans et al, 2013) and the Habitats Directive was enacted to further implement the Convention (Epstein, 2014). More specifically, the Convention's Emerald Network is directly based on the Directives' Natura 2000 network (Epstein, 2014), and all Natura 2000 sites are automatically part of the Emerald Network (Evans et al, 2013).

The Bern Convention-Species protection: Wolf numbers and densities are significantly higher, and trends significantly more positive, in Member States where both the Bern Convention and the Nature Directives apply (e.g. France, Germany, Italy, Sweden), than they are in non-EU European states where only the Convention applies (Trouwborst and Fleurke, 2014) (e.g. Switzerland and Norway). This is also confirmed by NGOs (e.g. National Mission to Sweden, NGO) which note that while both Norway and Sweden are members of the Bern Convention, measures are taken to protect large carnivores in Sweden, whereas this does not happen in Norway.

Bern Convention-EU Enforcement: The Commission has, in effect, enforced the Bern Convention by initiating infringement proceedings against Member States when breaches of non-binding recommendations issued by the Bern Convention bodies caused a failure to comply with the Nature Directives (Epstein, 2014)[729]. The EU enforcement powers are sufficiently effective that the Convention bodies are no longer reviewing cases of alleged breach of the Convention in matters that are the subject of EU infringement proceedings[730].

Member States' obligations under the Nature Directives are often the basis of a **common EU negotiating position** within international fora, which not only provides a coherent approach by all Member States', but also enables them to act with a single voice in international negotiations, strengthening the EU leadership in setting conservation standards globally with beneficial outcomes[731].

[729] Case C-103/00 Commission of the European Communities v. Hellenic Republic (the *Caretta caretta* case) and the Case 383/09 European Commission v. the French Republic (*the European Hamster case*).
[730] Council of Europe, Report of the 32nd meeting of the Standing Committee, T-PVS (2012) 22 at 2.
[731] Nature authorities Slovenia, NGOs Poland and UK.

Box 117 EU common negotiating position

The International Whaling Commission: The Habitats Directive has formed the foundation of the agreed EU common position at the International Whaling Commission regarding the proposals for amendments to the Convention[732]. The Council Decision recognises that a global approach reinforces the effectiveness of measures regarding migratory species[733]. All cetacean species are considered to be of EU interest and are listed in Annex IV of the Habitats Directive, requiring Member States to maintain these species in, or restore them to, Favourable Conservation Status. Without EU legislation, therefore, and a coherent worldwide approach, the effectiveness of any conservation measures would be undermined.

Stakeholders (i.e. UK NGOs) highlight that the Birds and Habitats Directives have made a significant contribution towards **biodiversity conservation outside the EU**. One of the examples from the evidence gathering questionnaires (UK NGOs) relates to the protection provided by EU legislation to species across the whole of their migratory route, going beyond the protection that these species could receive at national level. This case study relates to the Solent Waders and Brent Goose SPA.

Box 118 Examples of contribution towards global biodiversity conservation

UK: The designated SPAs of the Solent Coast are a network of statutory protected areas around the Solent, hosting most of the Brent Goose intertidal feeding grounds. In winter the dark-bellied Brent Geese fly from their Siberian Arctic breeding grounds along the coasts of southern and eastern England and from northern Germany to northern France. The Solent supports up to 13% of the world population of this species, and 30% of the UK population. There would be no advantage in protecting this species at a UK level as they are a migratory species using different parts of Europe during the year. European legislation allows the protection of this species across the whole of their migratory route.
Source : UK NGOs

Finally, the Nature Directives have impacted on accession countries that are already implementing the Birds and Habitats Directive. The Directives have served as a positive model for countries seeking accession to the EU because they have triggered positive conservation measures in similar countries. For example, the Croatian path is regarded as a model for other accession countries in the western Balkans, demonstrating that the Birds and Habitats Directive is important in improving the level of nature conservation for EU accession countries.

Box 119 Impact on accession countries

Croatia: Due to cultural, linguistic and natural similarities in the western Balkans, the Croatian implementation of the Nature Directives led by the 'Birds and Habitats Directives implementation roadmap' and accompanied by the development of administrative structures and capacities, is influencing the implementation of the Nature Directives during the accession process of other western Balkan countries.
Source: Association BIOM

[732] Council Decision establishing the position to be adopted on behalf of the European Union at the next five meetings of the International Whaling Commission including the related inter-sessional meetings with regard to proposals for amendments to the International Convention on the Regulation of Whaling and its Schedule /* COM/2011/0495 final - 2011/0221 (NLE), adopted by the Council on 19 December 2011.
[733] Recital 4 of the Council Decision indicated above.

9.1.3.2.5 Increased public awareness and stakeholder participation and cooperation

One of the examples of added value of the Nature Directives most mentioned by the stakeholders in their evidence gathering questionnaires is their impact in raising public awareness on the importance of nature conservation and on the development of stakeholders' participation and partnerships for cooperation. It is recognised that the level of public awareness and stakeholder involvement in Natura 2000 definitions of conservation and management measures has led to the increase in the acceptance of the Nature Directives and solve initial problems of resistance to the Directives' implementation, leading to higher effectiveness. This level of awareness and participation did not exist before the adoption of the Nature Directives in EU Member States and would not have existed without them, as they were generated by the need to implement the Directives. Particular good practice examples showing the transformational change triggered by the Directives are:

Box 120 Examples of increased public awareness initiatives

France: The difficulties in the designation of Natura 2000 sites in France at the early stages of application of the Nature Directives led in 1996 to a freeze in their implementation, particularly the SAC selection process. A renewed process for their implementation was established two years later based on the principle of public participation, framed within an awareness raising and information scheme for the establishment of the Natura 2000 network[734]. This participatory process was also developed for the adoption of the conservation objectives of the site (DOCOB) and the management plan for all proposed sites. The Directives have also triggered the development of an implementation scheme in France based on the management role of a local coordinator for each Natura 2000 site who is also responsible for ensuring the involvement of all relevant stakeholders in the decision-making on the conservation measures and the management required for each site. The local facilitator has the role of raising awareness of the meaning of Natura 2000 and meeting with local stakeholders to facilitate agreements, propose contracts and encourage best practice behaviours[735]. It is recognised that this system has led to an increase in the acceptance of the Nature Directives[736]. This process has also influenced other related policies, such as the Trame Verte et Bleu (green and blue infrastructure) covering landscape features outside of Natura 2000.

Poland: The nature authorities highlighted the added value of the Nature Directives in triggering a change in attitude towards nature protection. One of the most relevant examples refers to the Rospuda case in 2006, where the involvement of citizens in the decision-making process was instrumental for the protection of one of the last remaining pristine forests in the EU. The Rospuda River Valley (Upper Rospuda Valley) was threatened by planned construction of the Augustów bypass expressway, which was to cut across the protected wilderness area and Natura 2000 site in the valley. In 2007, the Commission initiated an infringement procedure at the CJEU. As a result, the Voivodeship Administrative Court cancelled the decision of the Minister of Environment approving the investment. In the following years, the location of the investment was discussed and a detailed analysis of several variants of the investment was carried out, with a thorough EIA conducted for each of the road options which had not been carried out before. The final selection of the route through Raczki (having the least impact on the environment) was announced by the Government in March 2010. As a result, the case to the CJEU was withdrawn[737].

The nature authorities consider the Directives to be the direct cause of increased public environmental awareness of the need to conserve biodiversity. They also consider that the current situation where stakeholders participate in the decision-making process for the adoption of conservation management measures of Natura 2000 sites, is rooted in the Nature Directives.

[734] National description of the implementation process related to site designation and management approaches (Articles, 6(1) and 6(2) of the Habitats Directive), L'Atelier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc accessed 3.11.15.
[735] *L414-1-III and R414-3 of the French Environmental Code.*
[736] National description of the implementation process related to site designation and management approaches (Articles, 6(1) and 6(2) of the Habitats Directive), L'Atelier, technique des espaces naturels, available at: www.eurosite.org/files/natura_FRdescription_en.doc accessed 3.11.15
[737] More information on this case can be found in the following link: http://www.natura2000.efort.pl/pliki/2012/rospuda_case.pdf accessed 17.02.16

Slovenia: Despite a broad coverage of designated land in relation to the national territory (37.5%)n the level of opposition to management requirements arising from the Nature Directives is low due to a high degree of awareness amongst the population[738]. According to the 2015 EU survey Slovenia is one of the three Member States where the majority of the population (58%) has heard about Natura 2000, with about 30% claims to know what the network is[739]. The awareness among Slovenians can be attributed to the awareness-raising activities carried out by the public authorities when setting up the Natura 2000 network in Slovenia (Hlad, 2004)'[740].

The level of awareness of the Nature Directives is linked to the level of stakeholder participation in the process for the adoption of decisions regarding conservation measures in Natura 2000 sites, as it provides for the basic knowledge to request involvement in the decision-making processes. While stakeholders in several Member States recognise that the Nature Directives have triggered a higher involvement of stakeholders, for other Member States, however, low participation remains a problem. This is mostly due to Member States implementation choices. Private sector stakeholders generally consider that the level of involvement is insufficient and generates conflict as a result of failure to meet their needs. The open question to the online public consultation also showed that representatives of certain socio-economic sectors do not consider themselves to be properly involved as stakeholders concerned with land use decisions. NGOs in some Member States also claim that their level of involvement in the development of site conservation measures or management plans is low in practice. However, the Nature Directives provide a new platform on which stakeholders can request further involvement.

The Directives' strict species protection standards have raised concerns about decisions on the socio-economic activities that can be carried out when affecting species outside Natura 2000, as well as concerns about the low involvement of private sector stakeholders in decision-making processes. These concerns have led to the development of innovative, flexible and pragmatic systems (e.g. the notion of temporary nature) which are increasing private landowners' participation in restoration outside Natura 2000 sites (Dimitrakopoulos et al, 2004). Literature points that the strict application of the rules on species protection have resulted in project developers or landowners deliberate actions to prevent protected species from settling in private land (Schoukens, 2015). In response to these challenges, a policy has been introduced in the Netherlands and in the Flemish region of Belgium, to develop nature on temporarily vacant industrial lands. The solution found in the Dutch 2007 Policy Document is based on the derogations issued under Article 16(1)(a) of the Habitats Directive and Article 9(1)(a) of the Birds Directive 'in the interest of protecting wild flora and fauna and conserving natural habitats'. While this initiative should not be considered a replacement of the existing regulatory framework for mitigation measures outside Natura 2000 areas, it is an innovative and pragmatic approach that promotes a collaborative approach to nature conservation by private landowners (Schoukens, 2015), p60). This option has been validated by the national courts (Ruling of 27 May 2011 by the District Court of Amsterdam) and by the Commission (letter from the Commission of 21 February 2014) as a useful instrument, compatible with the objectives of EU nature conservation law as long as the existing areas are sufficiently protected and managed (Schoukens, 2015), p53).

Despite the transformational change triggered by the Directive in raising awareness of the importance of nature, and increasing the involvement of stakeholders, the situation is not optimal, mostly due to implementation approaches and choices at national level and insufficient support at EU level. The EU added value is dependent on the effectiveness and efficiency of the Nature Directives in achieving their objectives as expected, and the failures in implementation of the Nature Directives and lack of involvement of socio-

[738] Natura 2000 Newsletter, number 38, June 2015, available at: http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat38_en.pdf accessed 5.11.15
[739] Special Eurobarometer 436 "Attitudes of Europeans towards biodiversity", European Union, 2015.
[740] Communication support to the Implementation of Natura 2000, ID number 2006/S 55-057662, available at: http://www.natura2000.si/uploads/tx_library/Komunikacijska_podpora_Natura.pdf accessed 5.11.15

economic stakeholders in decisions related to the conservation management of Natura 2000, limit the full potential of the Directives' to add value.

9.1.3.3 Added Value in light of the principle of 'proportionality': efficiency

Proportionality requires that action be no more than is needed to achieve the intended objective. This means examining the need for action, and the costs and benefits that can be expected. The EU added value of the Nature Directives in relation to the principle of proportionality is linked to how the objectives are achieved, in particular the development of better, cost-effective and sustainable tools. According to the criteria identified in the study for maximising the European added value of the EU budget (Medarova-Bergstrom et al, 2012), this principle requires the use of instruments (including financial instruments) to enable the achievement of the greatest possible benefit for nature conservation through cost-effective means. This implies that they offer good value for money, but not necessarily at the lowest possible cost. Cost-effectiveness is important in order to ensure that actions are sound and can deliver good outcomes for the biodiversity conservation objective. The proportionality principle also applies to good governance procedures and actions to promote transparency, public participation and partnership.

9.1.3.3.1 Member States cooperation for more efficient implementation

The joint approach required by the Nature Directives has triggered a mechanism for coordinated measures for the management of Natura 2000 sites and has contributed towards **better cooperation** between Member States. Examples of Member States' exchanges and sharing of best practices to support new countries joining the EU have been provided by stakeholders and the nature authorities of several Member States (e.g. Poland, Slovakia). These practices have generated more effective implementation of the Directives by ensuring knowledge management and sharing of experiences.

The transboundary cooperation for nature protection triggered by the implementation of the Nature Directives is demonstrated in the case of the Dogger Bank SAC in the North Sea and the SCANs project on cetaceans' monitoring.

Box 121 Examples of cooperation between Member States

UK: The Dogger Bank SAC is an example where EU level action has, and will continue to be, essential to achieving biodiversity objectives. Adjacent sections of this area were designated by Germany, the Netherlands and the UK under the Habitats Directive and an intergovernmental steering group has been convened to develop a fisheries management plan for the combined transboundary area.
Source: Dutch NGOs, German representative of fisheries sector, UK NGOs.

Estonia: The Estonian authorities state that without the Directives there would have been less cooperation with neighbouring countries for the exchange of experience on preservation and restoration of habitats or monitoring systems.

Box 122 SCANS – survey collaboration between Member States

The SCANs-II project is an example of effective collaboration by Member States to implement the requirements of the Habitats Directive in the most cost-effective way possible. It involved large-scale surveys to estimate the abundance of small cetaceans in the European Atlantic and North Sea, in line with the requirements of Article 11. The project was supported by LIFE funding, with 11 partners in 10 countries, and co-financed by institutions in seven countries. EU funding was an important catalyst for collaborative action in this case.
Source: Evidence gathering questionnaires submitted by BirdLife Europe and Nature Trust Malta.

Cooperation between governmental and non-governmental institutions, as well as scientific institutions, has been strengthened, leading to new governance structures, partnerships and agreements that have has a positive impact on the implementation of the Nature Directives[741] (For more information, see section 5.4).

9.1.3.3.2 Funding linked to the Nature Directives

The added value of the Nature Directives with respect to funding can be shown in two ways. First of all, the financing component in Article 8 of the Habitats Directive has translated into different EU financing mechanisms which have allowed for increased availability and use of EU funds for biodiversity and nature conservation in pursuit of EU objectives. The main EU funds made explicitly available to support the objectives of the Nature Directives include not only the LIFE programme focusing on conservation, management and restoration activities or projects, but also the increased availability of the cohesion funds, regional and rural development funds, Common Agricultural Policy (CAP) funding and FFP. Without the Nature Directives, certain initiatives would not have received financial assistance. Research, awareness-raising, or funding for site management have been allocated because they were related to the Natura 2000 Network sites, or because they are landscape features which ensure the coherence of the Natura 2000 network.

Secondly, funding provided as a result of the Nature Directives provides added value by acting as a catalyst for the funding of nature conservation at national level. These additional national funds that have been generated by the implementation of the Nature Directives cover similar issues to those described above. While it is not possible to determine whether the same level of funding would have been used for nature conservation if the Natura 2000 network had not existed, the Nature Directives guide this funding to the most important objectives at a European scale.

Box 123 Examples of the increased use of EU Funds

- **Cyprus:** In Cyprus, the LIFE programme has been the main instrument used for financing Natura 2000. It was, and still is, the most accessible instrument, with multiple funding opportunities that have financed scientific and management actions to enhance the Natura 2000 network. These funds have enabled partnerships and enhanced the awareness of nature conservation, and the acceptance and profile of the Natura 2000 Network. Apart from LIFE, no other funding mechanism has been substantially used for nature protection and site management. From 2012 onwards, no national funding has been used for nature conservation due to the economic crisis. This has led to complete reliance on EU funding for nature protection, mainly through the LIFE programme.
- **Netherlands:** In the Netherlands, from 2016, a new programme for agri-environmental measures will be applied. According to the Dutch authorities, this will focus on the establishment and management of habitats of those species protected under the Birds and Habitats Directives.

Examples of the Nature Directives acting as catalysts of additional funding

- **Denmark:** In Denmark, efforts to ensure biodiversity conservation within Natura 2000 sites double the efforts outside Natura 2000 areas. The so-called 'Agreement on green growth' from 2009 demonstrates this difference[742].
- **UK:** In the UK, the requirements of the Birds and Habitats Directives have acted as a catalyst

[741] http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/index_en.htm accessed 4.11.15
http://www.renewables-grid.eu/ accessed 4.11.15
http://ec.europa.eu/environment/nature/conservation/species/carnivores/coexistence_platform.htm accessed 4.11.15
http://www.birdlife.org/worldwide/cemex-birdlife-international-global-conservation-partnership-programme-2007-2017 accessed 4.11.15 and http://www.birdlife.org/europe-and-central-asia/partnership-heidelbergcement accessed 4.11.15
http://www.ecoports.com/ accessed 4.11.15

[742] Regeringen, Grøn Vækst, April 2009, available at: http://fvm.dk/fileadmin/user_upload/FVM.dk/Dokumenter/Servicemenu/Publikationer/Groen_vaekst.pdf accessed 17.02.16

and driver for funding projects delivering multiple benefits (far in excess of their costs) which would never otherwise have been undertaken. Funding associated with the EU nature legislation has been fundamental in the creation, restoration and management of habitats and the recovery of many species in the UK, such as the Alkborough managed realignment project on the Humber Estuary and the Wallasea Island habitat creation project, both driven by the need to avoid deterioration and to compensate for losses of intertidal habitat to flood defence developments within SPAs and SACs
Source: evidence gathering questionnaire of UK NGOs.

(See also sections 6.2 and 8.7 on the use of funding.)

The Natura 2000 network has often formed the basis for joint implementation of projects between neighbouring regions supported by EU funding (LIFE), or neighbouring countries (INTERREG), without which conservation objectives would have been more difficult to reach. For example, the Project LIFE DINALP BEAR, where scientists from neighbouring member states (Austria, Croatia, Italy, Slovenia) are looking for a management solution of shared Brown Bear populations (Nature authorities, Slovenia)[743].

Despite the clear added value of the Nature Directives in ensuring a more efficient implementation than would have existed with purely national actions, by prioritising funds and generating more availability and use of funding for the Directives' objectives, it is recognised that a funding gap persists, as a result of implementation approaches and choices at national level and insufficient support at EU level.

EU added value is dependent on the effectiveness and efficiency of the Nature Directives in achieving their objectives as expected. Shortage of funding available (as described in previous sections) limit the full potential of the Directives' EU added value.

9.1.3.3.3 Sustainable development and integrated management approaches

According to the literature (Born et al, 2015) the Habitats Directive concept of Natura 2000 sites goes beyond the traditional definition of a 'protected area', since the sustainable use of resources and the achievement of the nature conservation goals are fully interconnected[744].

The Habitats Directive introduces a flexible approach to site management, aiming to promote sustainable development. According to the Commission Guidance document 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC', management plans should be developed with the participation of stakeholders, and economic activities or factors should be taken into account in the management of Natura 2000 sites[745]. Furthermore, decisions for authorising activities, development projects or plans likely to affect Natura 2000 sites should take into account socio-economic considerations where these support or do not undermine the conservation objectives of the site.

Stakeholders from several Member States (e.g. Belgium, the Netherlands, Poland, Spain, and the UK) emphasise that the Nature Directives have **helped businesses to integrate biodiversity** in their planning in a coherent way. Some stakeholders have provided examples of integrated management which have been promoted by the implementation of the Nature Directives.

[743] http://dinalpbear.eu/en/ accessed 17.02.16
[744] C. Romao, The added value of the Habitats Directive.
[745] http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf

Box 124 Examples of integration of biodiversity in business planning

Denmark: The conservation of Natura 2000 sites with natural dune ecosystems along the Danish coasts, including the dynamic Wadden Sea sites hosting the Wildfowl Seal and Harbour porpoise populations, have been fundamental for developing Danish tourism. A LIFE project covering 11 SCIs and a surface of more than 24.000 ha within the Natura 2000 network was developed in 2007 aiming to ensure the restoration of Dune Habitats along the Danish West Coast to promote tourism, and which would probably not have taken place without the Directives.

Ireland: The Northern Ireland Prioritised Action Framework (PAF) requires projects relevant to agriculture, fisheries conservation and environmental awareness to be implemented as integrated projects.

UK: The case of the Thames Basin Heaths SPA provides another example where socio-economic interests were integrated with environmental safeguards and protection measures. In this case a sub-regional strategic assessment was required under the Birds Directive, which subsequently improved the management of urban growth. The stakeholder considers it is unlikely that this assessment would have been carried out under a site with just an SSSI designation. The presence of the SPA led to 11 planning authorities working together to create a strategic solution, resulting in continued protection of a significant habitat while creating a framework for building developers to work within, allowing development of the area without significant impact on protected features.
Source: NGOs in the UK

The implementation of the Directives is made more efficient when initiatives achieve multiple environmental benefits. The agri-environment schemes in place in the UK reap multiple benefits, not only for biodiversity but also for other aspects of the environment, such as landscape and historic assets.

Box 125 Initiatives of efficient integrated management approaches

Germany: Joint measures are undertaken to implement the Water Framework Directive (WFD) and the Nature Directives, for example in conserving habitats and improving passes for migratory fish. This joint process has already shown initial success in improving the conservation status of some fish species. Other examples of synergies that have reduced costs include joint management planning under the Habitats Directive and the WFD, and a research and development project to develop and test a harmonised procedure and guidelines for the trans-sectoral and cross-border implementation of the WFD, Habitats Directive and Birds Directive.
Source: Evidence gathering questionnaire submitted by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (Germany).

UK: The Sustainable Catchment Management Programme was devised to ensure the sustainable environmental management of 20,000 ha of water catchment land under United Utilities' ownership in the Peak District and the Forest of Bowland. One of the main drivers was restoration of land with SSSI and SPA status supporting priority habitats. In recent decades, industrial pollution, drainage of the moorland peat, wildfires and agricultural practices have all had a negative environmental impact, affecting the wildlife value of the site. This has contributed to increased pollution of water drawn from the catchment, which has to be treated before it is suitable for drinking. A partnership between United Utilities, the RSPB and local farmers has developed an integrated land management approach which complies with the Habitats Regulations, enhances biodiversity and improves the quality of the water abstracted for drinking, as well as providing enhanced income for tenant farmers.

The Netherlands: There are similar examples in the Netherlands, where water companies owning 36 Natura 2000 sites, recognising the importance of proper conservation of these areas for the supply of clean drinking water, have taken the lead in stimulation of conservation of nature and biodiversity. *Source: Evidence gathering questionnaires submitted by DEFRA UK, EEB and Vogelbescherming Nederland.*

Spain: Spanish NGOs (SEO/Birdlife) have developed a project to promote the use of 'Natura 2000 product' as a label of origin based on criteria related to proper site management and providing a marketing tool for labelled products in supermarkets. During 2013-2014, this market testing exercise has been carried out with products specifically labelled as "Natura 2000 Product". The aim was to determine the influence of this brand on sales in the cities of Zaragoza y Barcelona. The tests

were carried out in two different types of shops: those specializing in organic products and conventional supermarkets. The results showed that a majority of participants in customer surveys were prepared to pay more for the same product if it had the "Natura 2000 Product" label, with actual sales of the same product with the label significantly higher than without it.
Source: Evidence gathering questionnaires NGOs Spain

Despite evidence showing that integration and sustainable development examples are triggered by the Nature Directives at a scale that would not be achieved with solely national action, the level of integration of nature conservation concerns in sectoral policies is not fully achieved. The implementation of this approach is not exempt from the challenges described in section 7.3. EU added value is dependent on the effectiveness and efficiency of the Nature Directives in achieving their objectives as expected, and implementation approaches and choices at national level or insufficient support at EU level are jeopardising the full potential of the Directives' added value.

The 2011 review of the implementation of Species Action Plans (SAPs) for threatened birds in the EU concluded that biodiversity recovery requires tackling large scale land-use pressures, such as agricultural intensification, commercial fisheries and urbanisation, all of which continue to cause habitat loss and degradation (as demonstrated by the Little Bustard and Balearic shearwater plans (Barov and Derhé, 2011)[746].

Other examples highlight that progress towards achieving the objectives set out in the Directives is weaker for habitats and species dependent on human activities or policies, in particular agriculture. This is the case in Wallonia, Belgium, where the loss of grassland of high biodiversity value has been considerably accelerated due to incentives for intensive agriculture.

In countries with a very rapidly transforming rural space and intense competition for land-use allocation, the problem is related to the establishment of a process of allocation and regulation of land-use. The Natura 2000 network is viewed as a starting point for negotiations with stakeholders. If properly implemented, the importance of the Natura 2000 network would then largely surpass the original goals for the conservation of species and habitats of European interest (Dimitrakopoulos et al, 2004).

9.1.3.3.4 Results from the online public consultation

The report on the results of the online public consultation carried out within the remit of this project, provides a variety of perspectives which, although seeming contradictory, in fact reflect the breadth of stakeholders' views and interests in the implementation of the Nature Directives.

The online public consultation generated an unprecedented level of interest, with participants responding from all 28 Member States. In total, 552,472 responses were submitted. 97% of respondents answered only Part I of the questionnaire (535,657 responses), while 3% went on also to complete Part II (16,815 responses) but few of those from the nature campaing. At least 12 campaigns from different interest groups were organised to guide respondents through the questionnaire. The impact of those campaigns resulted in more than 500,000 respondents (93%, largely representing respondents linked to the Nature Alert! Campaign organised by NGOs responding only to Part I) to the online public consultation questionnaire expressing their views that the Directives provide added value, while the rest of the responses (linked to Part II - affected more by campaigns related to certain socio-economic interests and activities) were less supportive. The large majority of businesses (80% of 2,371 business responses) believed that the Nature Directives had no added value to the economy. Respondents from business expressing this opinion included 82% of the 1,552 responses from the agriculture and forestry sector,

746
http://ec.europa.eu/environment/nature/conservation/wildbirds/action_plans/docs/Final%20report%20BirdLife%20review%20SAPs.pdf

76% of the 99 responses from the fisheries and hunting sector, and 71% of the 327 responses from industry (construction, extractive industry, transport).

Respondents' views were even more positive about the Directives' additional social benefits, with 95% of all respondents believing that they brought either some or significant additional social benefits. The majority of respondents from business (56%) also believed they had some added social value, even if a further third of businesses and of other organisations or associations stated that they brought no added social value.

Part II of the online public consultation questionnaire asked for an opinion on the overall state of species and habitats if the EU Nature Directives did not exist. The opinions of the 16,815 respondents who answered this question were divided between those who believed the state of species and habitats in the EU would be much or somewhat worse without the Nature Directives (44%) and those who thought that it would be the same (48%). The views varied significantly between types of respondents and interests representing. 84% of research institutes, 78% of government or public authorities and NGOs, and 65% of other organisations thought the situation would be somewhat or much worse. The majority of businesses (74%), however, believed that the state of species and habitats would be the same.

9.1.3.4 Key findings

Added value in light of the policy objectives

- The evidence highlights that EU level action is a more effective way to achieve the conservation objective of the Nature Directives, due to the transnational character of nature and the steps required to conserve it. The Birds Directive was initially driven by the need to set a protection system for transboundary species, an aim then mirrored by the Habitats Directive. Most stakeholders recognise the clear added value of the Directives in ensuring biodiversity conservation through protection of the sites of Community importance.
- The Habitats Directive has created an innovative process for the establishment of the Natura 2000 network. This coherent network in the whole EU territory is based on scientific information and evidence, and takes a 'biogeographical regions' approach. It is broadly recognised by both stakeholders and the literature that the Directives have led to a substantial increase in the extent of land and marine protected areas, far beyond what might have been covered in the absence of the Directives. Quantitative data shows that 30% of designated land at EU level is additional to that designated at national level in Member States. However, more remains to be done in order to achieve the full potential added value of the Directives' provisions on coherence of the network.
- The concept of Favourable Conservation Status introduced by the Directives is a new way of measuring biodiversity status, and its application across all Member States provides an added value which would not otherwise have been equally applied in all Member States. Despite the added value of this concept triggered by the Nature Directives, further guidance and harmonisation in the implementation of this concept is still needed.
- Specialised literature shows that the harmonised systems of species protection have led to the control of illegal hunting practices. This would not have happened without the Directives, as the evidence points to difficulties in national implementation. For example, a study comparing the situation in countries along the Adriatic Flyway concludes that the implementation and control of legal standards for the protection of birds are stronger and more effective in Member States than in countries that are non-EU Members. In those countries, hunting laws are weaker and there is inconsistent implementation and control of the existing laws. Furthermore, scientific

studies confirm differences in trends of Annex I bird species within and outside the EU, and state that declines across Annex I species have been successfully reversed after EU accession, demonstrating that, without the Directives, such declines in Annex I species would have continued.

Added Value in terms of the principle of 'subsidiarity'

- The Directives have generated major transformational change in the legal framework of Member States, triggering the adoption of more robust legislation in some Member States than existed prior to Directives entering into force. Literature and most stakeholders recognise that the standards of protection for Natura 2000 sites under Article 6(2), (3) and (4) provide added value to the standards in place before the adoption of the Directives. The higher levels of protection provide more effective means to ensure the conservation of habitats and species in the EU, and would not have been achieved by Member States acting individually.
- The Directives have led to increased knowledge. Before their adoption, information collected by Member States was neither systematic nor comparable. A number of Member States (including Estonia, Ireland, Poland and Spain) used EU funding to support the development of inventories. However there is still a recognised knowledge gap that affects the effectiveness in the application of the Nature Directives, notably the designation of marine protected areas.
- The Directives have generated a transformational change in improving stakeholder participation and public awareness, adding value to the independent national systems. Evidence provides examples from France and Slovenia, where the establishment of the Natura 2000 network and site management was based on the principle of public participation framed within a public awareness national scheme. While different stakeholders recognised that without the Directives, the existing level of public participation and awareness on nature would be lower, evidence also shows that the Directives' potential added value might be undermined by national decisions to withhold investment from awareness-raising and stakeholder participation initiatives.
- Evidence from published literature concludes that the Directives established a level playing field based on harmonised rules and ensure that one Member State cannot gain competitive advantage over others through the adoption of lower standards.
- Stakeholders and literature broadly recognise the added value of the Nature Directives in ensuring compliance and strengthening international (global) commitments regarding habitats and species protection signed by the EU, in particular regarding migratory species, but also on protected areas. The soft nature of the International Agreements is reinforced by the higher standards of protection and enforcement within EU legislation.

Added Value in light of the principle of 'proportionality'

- For funding, the added value of the Nature Directives can be shown in two ways: firstly, Article 8 of the Habitats Directive has translated into higher availability of EU funding sources, with an increased use of EU funds for biodiversity and nature conservation (such as the LIFE programme cohesion funds, regional and rural development funds, CAP funding and FFP). Without the Directives, it is unlikely that EU funds would have been provided to this extent to support investments for nature or that would have had a sufficient focus on priorities at a European level. Secondly, the Directives also act as catalysts for national nature funds, including co-financing for the use of EU funds.
- An analysis of the legal provisions - supported by specialised literature - shows that the Habitats Directive concept of Natura 2000 sites goes beyond the traditional

definition of a 'protected area'. This introduces a flexible approach to site management, where socio-economic factors can be considered leading to sustainable development and higher participation of stakeholders. The implementation of this objective and approach is not exempt from challenges as described in question R.3 (see section 7.3), although there are good examples such as those showing that the Nature Directives have helped businesses to integrate biodiversity in their planning.

9.2 AV. 3 - Do the issues addressed by the Directives continue to require action at EU level?

9.2.1 Interpretation and approach

When answering this question the main consideration was to demonstrate, with evidence, whether or not EU action is still required to tackle the key problems faced by habitats and species in Europe which are addressed by the Directives.

The judgement criteria, therefore, is the extent to which action at EU level continues to be required to achieve the objectives and needs addressed by the Directives.

This question is structured in two parts: the first describes the main arguments justifying the continued need for EU action, while the second presents the arguments against EU action in this field.

9.2.2 Main sources of evidence

Information and evidence was drawn from the responses to the evidence gathering questionnaire, along with the supporting evidence presented. However, the responses received were mostly general, with only a limited number supplying examples and evidence. The results of the online public consultation have also been considered although these were not conclusive, given the trend of responding according to the guidelines established by the different campaigns.

EU documents and specialised literature on the Nature Directives provided additional information for supporting arguments. However, only a small body of literature has specifically explored the EU added value of the Nature Directives and the need for continued EU action, e.g. (Born et al, 2015) and some EU Studies (Romão, 2015; Sundseth and Roth, 2013). Additional literature reviewed covered the relevant aspects of EU added value in general.

9.2.3 Analysis of the question according to available evidence

The evidence gathering questionnaire

Most responses to the evidence gathering questionnaire (66 of 79 received) considered that action at EU level continues to be necessary, with only four stating that no action at EU level is required, and one raising the need for deregulation (see sub-section below describing the arguments against EU action). The rest provided information but did not give a firm answer.

The online public consultation

The online public consultation generated an unprecedented level of interest, with participants responding from all 28 EU countries. In total, 552,472 responses were submitted. Althought it was open to all interested parties and seems to reflect the importance of nature to Europeans than other issues subject to EU consultation, it must be acknowledged that it is not a representative sample of EU population's opinion.

An overwhelming majority (98%) of the 552,442 respondents to the online public consultation believed that there is still a need for EU legislation. This reply was consistent across most types of respondents; individuals (98%), academic or research institutes (89%), governments or public authorities (78%), NGOs (82%), and other organisations or associations (76%) representing all interest groups. It is worth noting that the number of responses considering EU action in this field to remain necessary, goes beyond the influence of the largest campaign organised by environmental NGOs in favour of that view, (the Nature Alert! Campaign, which accounted for approximately 92% of responses to Part II of the online public consultation)

However, the majority (63%) of respondents from businesses considered there to be no further need for EU legislation for the protection of species and habitats, with a large majority of respondents from agriculture and forestry, as well as from fisheries and hunting (84 and 72% respectively) holding this view. On the other hand, a large majority of respondents from the industry sector (87%), as well as 92% of business involved in nature and the environment, stated that there remains a need for EU legislation[747].

Each side uses some of the same arguments to justify both the need for EU legislation, and the 'no need for EU action' in this field.

9.2.3.1 EU action (still) required

9.2.3.1.1 EU action to halt biodiversity loss

The Habitats Directives states: 'Whereas, in the European territory of the Member States, natural habitats are continuing to deteriorate and an increasing number of wild species are seriously threatened'. Given that that this considerable problem remains (see below), European action continues to be very much needed.

Growing concern over biodiversity loss has prompted the EU to sign up to ever more ambitious biodiversity conservation targets[748]. On May 3 2011, the Commission adopted a new strategy to halt the loss of biodiversity in the EU by 2020, highlighting a dual mandate. The first defines the vision for 2050: '*By 2050, European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided'*[749].

The second defines the headline target for 2020: '*Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss'*:

[747] Construction, infrastructure development and extractive industries.
[748] Convention on Biological Diversity, *'Aichi Biodiversity Targets'*, available at https://www.cbd.int/sp/targets/ accessed 17.02.16
[749] European Commission, DG Environment, *'EU Biodiversity Strategy to 2020*, available at http://ec.europa.eu/environment/pubs/pdf/factsheets/biodiversity_2020/2020%20Biodiversity%20Factsheet_EN.pdf accessed 17.02.16

The 7th EU Environmental Action Programme adopted in 2013 set out the ambition that: *'In 2050, we live well, within the planet's ecological limits…and biodiversity is protected, valued and restored in ways that enhance our society's resilience'*[750].

The Commission considers the Nature Directives to be the cornerstone of the EU's biodiversity policy to achieve the EU's long term goal for 2050 (European Commission, 2011g). These high-level strategic commitments or programmes show that the Commission considers that needs remain, as we still have yet to halt the loss of biodiversity, making continued action at EU level necessary. The European Council committed in March 2010 to the EU post-2010 vision and target for biodiversity, which underscores the urgent need to reverse continuing trends of biodiversity loss and ecosystem degradation. In December 2011 the Environment Council reacted to the adoption of the Biodiversity Strategy, stressing the need to integrate biodiversity concerns into all EU and national sectoral policies, in order to reverse the continuing trends of biodiversity loss and ecosystem degradation. The European Parliament resolution of April 2012 re-states that the loss of biodiversity 'has devastating economic costs for society which until now have not been integrated sufficiently into economic and other policies'[751].

There is scientific evidence that EU level intervention through the Nature Directives has been effective at decreasing the rate of loss of biodiversity (Donald et al, 2007). Despite the evidence to suggest examples of success of the Nature Directives (see section 5.1), there is also evidence to show that biodiversity loss continues, for example, the Pan-European Common Birds Indicator[752] referred to by NGOs in Belgium, Spain, Luxembourg, Malta and Portugal.

According to the 2015 State of Nature Report (EEA, 2015a), almost one-quarter (23%) of the species protected under the Habitats Directive has a Favourable Conservation Status at EU level. But, at the same time, over half (60%) have an unfavourable assessment. The overall status of species and habitats in the EU has not changed significantly from the period 2007-2012, with many habitats and species showing an unfavourable status, and a significant proportion deteriorating still further. The EEA concludes in the 2015 State of Nature Report that most of the recent favourable assessments were also favourable in the previous reporting period, and that most of the improvements in the conservation status assessments were largely attributable to improved data and changes in methodology. It confirms that more habitats and species are declining than improving. The 2015 EEA report on Europe's environment (EEA, 2015c) states that 'European natural capital is being degraded by socio-economic activities such as agriculture, fisheries, transport, industry, tourism and urban sprawl'.

As stated in question S.1 (see section 5.1), these results are not surprising, as the majority of actions taken to implement the Directives have focused on the identification and establishment of the Natura 2000 network. The more practical management measures that will actually improve habitat conditions and meet the ecological requirements of species are yet to be fully put in place in many Natura 2000 sites, as well as in the wider environment. In addition, species and habitats often take a long time to respond to conservation measures, as indicated by the study of the response of birds to the implementation of the Birds Directive (see Donald et al, 2007, also below). While birds specifically protected by the Birds Directive since 1979 are already starting to recover (Donald et al, 2007), progress of many species and habitats under the Habitats Directive (adopted in 1992) is less assured, especially as some of the actions required by the Directives in Natura 2000 - such as the adoption of the necessary conservation measures and, if needed management plans - are still not implemented in the majority of Member States.

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[750] European Commission, *'Living well, within the limits of our planet: 7th EAP – The New general Union Environment Action Programme to 2020'*, available at: http://ec.europa.eu/environment/pubs/pdf/factsheets/7eap/en.pdf accessed 17.02.16

[751] http://ec.europa.eu/environment/nature/biodiversity/policy/index_en.htm

[752] EBCC, Pan-European Common Bird Monitoring Scheme (PECBMS), available at: http://www.ebcc.info/pecbm.html accessed 17.02.16

Some stakeholders (e.g. NGOs from Germany, Luxembourg and Malta, nature authorities in Spain and public authorities in the Netherlands) considered it not only necessary but urgent to take joint action, given the continued decline of biodiversity in the EU. They acknowledged that most threatened habitats and species react only slowly to conservation actions taken under the Directives. Stakeholders refer to the latest results from the Article 17 report of the Habitats Directive, stating that Europe's habitats and wildlife are still under pressure from the key problems (see sections 5.1 and 7.1) acting as the drivers of biodiversity loss.

As long as the strategic goals of the EU are not attained and the objectives of the Nature Directives are not fully met, the same needs that justified the adoption of the Directives, justify their continuation. A continued EU wide approach to this challenge is likely to be more effective than isolated actions undertaken by individual Member States.

Box 126 Examples of positive conservation results

Sweden: The Long-tailed Duck (*Clangula hyemalis*) is one example of a species where a large part of the world population stays in the Baltic during winter. Since the population is shared by all countries around the Baltic, cooperation on conservation measures is necessary and is aided by the Directives.

UK: The protection provided by EU legislation to species across the whole of their migratory route goes beyond the protection that would be possible for these species at national level. For example, the designated SPAs of the Solent Coast supports up to 13% of the world population of Brent Goose, and 30% of the UK population. National protection measures in isolation might be considered neither necessary nor effective by any one Member State, given that this migratory species is in different parts of Europe throughout the year.

Czech Republic: Many species and habitats need protection at European level. Migratory species have benefited from joint implementation action under the EU Directives, for example, migratory studies for large carnivores – Lynx, Wolf, Brown Bear in Beskydy, Lynx in Southwest Bohemia, Šumava).

Source: NGO Zeleny Kruh.

Most stakeholder (86%) responses to this question through the evidence gathering questionnaires recognised the EU added value of the Nature Directives in ensuring biodiversity, and considered EU level action to be essential to conserve shared biological resources and ensure joint conservation action across the Union. They pointed to the need for –EU action to tackle those key problems affecting EU habitats and species, highlighting that transboundary conservation issues can only be tackled by a single EU legislation and, at a lower level, protected areas that stretch across borders need to have a single management and legislation approach to be effective (e.g. NGOs, nature authorities in Malta, public authorities in the Netherlands and Luxembourg). NGOs from Belgium, Spain, France, Italy and the Netherlands stated that the need to reverse biodiversity loss requires not only that EU action should continue, but that the EU should do more. In this context they emphasised the need for the EU to ensure Member States' implementation of the Directives, and the need to close enforcement gaps (see the section on enforcement below). While stakeholders (NGO in Ireland) recognised that other transnational conservation efforts exist – e.g. international conservation instruments (Ramsar, Bern, CBD, etc) – these are not supported by the same kinds of tools which come from EU integration (e.g. enforcement mechanisms), lessening their impact (see section 8.9).

Nature protection has, like many environmental issues, a transnational nature, and cannot be achieved by Member States acting alone or without stronger international cooperation. National governments' actions have a more limited scope and are therefore less effective than EU level action for reasons of scale and effects. The need for a collective and concerted effort has always been a fundamental argument for EU environmental action (Medarova-Bergstrom et al, 2012). Applied to this context, EU action on biodiversity is justified, as nature knows no borders, and biodiversity often exists across the territory

of several Member States (e.g. migratory species including birds, marine species or large carnivores, as well as wildlife habitats that straddle national borders), necessitating a coordinated multilateral response for its protection. This coordinated response can only be based on common standards to ensure effective cross-border action and a level playing field. The Birds Directive was initially driven by the need to create a protection system for transboundary species, an aim subsequently mirrored by the Habitats Directive[753]. If the intervention is limited to national or local level, it would be less effective, with the risk of different standards of protection between Member States.

As explained in question AV.1/2, the Nature Directives form part of the EU policy on Environment which is a shared competence between the EU and its Member States (Article 4 of the Treaty on the Functioning of the European Union (TFEU)). The subsidiarity principle is applicable to the Nature Directives, therefore the EU shall act only if and insofar as the proposed action cannot be sufficiently achieved by Member States in isolation, and added value can be provided if the action is carried out at EU level for reasons of scale or effects. The subsidiarity principle already existed implicitly in the EU environment policy since it was recognised as a policy of Community competence by the Single European Act adopted in 1986[754]. From the outset, the Directives' adoption has been based on the principle that the EU action provided added value and was needed to address the expected objectives. The same justification continues to exist now.

The UK Government's 'Balance of Competences Review Environment Report' stated that: 'The majority of respondents believed that EU competence has increased environmental standards in the UK and across the EU and that this has led to improved performance in addressing several environmental issues. The evidence showed that a large number of organisations representing all sectors considered that it is in the UK's national interest for the EU to have a degree of competence in the broad areas of environment and climate change because of the advantages that this brings for the Single Market and environmental protection.'

Some stakeholders (e.g. NGOs in Greece and Ireland) consider the Directives to be a key instrument supporting the EU's global leadership in the efforts to halt biodiversity loss, setting up processes that either guide or implement the growing number of multilateral environmental agreements.

The monitoring of the conservation status of habitats and species of Community interest, as well as the coordination of knowledge and conservation effort at EU level, cannot be achieved by an inconsistent national approach (see section 9.1 on the added value of the EU approach).

A 2014 representativesurvey of Europeans' attitudes towards the environment shows that the great majority of Europeans (77%) believe that EU environmental legislation is necessary to protect the environment in their country. The majority (60%) of Europeans think that environmental decisions should be taken jointly between national governments and the EU, while about one-third (36%) believe that only national governments should take such decisions[755]. Another survey of EU public opinion carried out in 2015 on the attitudes of European citizens towards biodiversity, asked them to select the two most important measures that the EU should take to protect biodiversity in particular[756]. The high degree of support for expanding the areas where nature is protected (89%) and for strengthening existing nature and biodiversity conservation rules (88%) show the relevance of nature legislation for Europeans.

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[753] NGOs from Belgium, Czech Republic, Germany, and the Netherlands and at EU level (EEB and BirdLife Europe).

[754] European Commission 2014. Annual Report 2013 on subsidiarity and proportionality. Report from the Commission, COM(2014) 506 final, 5.8.2014.

[755] European Commission, *'Report on Attitudes of European citizens towards environment'*, September 2014, available at: http://ec.europa.eu/public_opinion/archives/ebs/ebs_416_en.pdf accessed 17.02.16

[756] http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2091 accessed 17.02.16

9.2.3.1.2 EU Enforcement

According to the specialised literature reviewing this issue as a comparative study at EU level, (Schoukens, 2015)[757] the implementation of the Directives has been marked by a 'glaring lack of proper enforcement of the EU Nature Directives in many Member States throughout the past decades'. This has led to some voices asking for 'stricter enforcement of the EU Nature Directive on the ground' which would 'lead to better recovery chances for some of the EU's most threatened species'.

On the other hand, in some countries, the relatively high number of law suits initiated by environmental NGOs to enforce the Birds and Habitats Directives have led to an exacerbated use of the precautionary principle by local permitting authorities. Decision makers at local level are reluctant to grant permits to activities that could be considered to cause irreparable damage to biodiversity, fearing NGOs would challenge such decisions in the EU Courts. Some public authorities and authors state that this has had negative biodiversity consequences, such as 'management practices aimed at pre-emptively destroying habitat to prevent protected species from occupying it in at a later stage' (Schoukens, 2015)

While many authors conclude that EU nature conservation law is applied too narrowly by some national judges to allow for a good balance between economic development and nature conservation, others point to the poor compliance with procedural and substantive requirements as one of the major reasons for the limited success of EU nature conservation law in integrating economic and environmental objectives to-date. Decisions at national level can be subject to short-term interests or pressures, which can be more effectively counteracted by enforcement action at EU level due to the more impartial assessment of the cases, as well as easier access to the Commission and the European Court of Justice (CJEU) by NGOs.

Literature and stakeholders recognise that enforcement of the requirements of the Birds and Habitats Directives by the Commission and the CJEU has been instrumental in ensuring transposition and implementation of the Nature Directives. The effectiveness of enforcement at EU level is recognised by studies comparing it with the effectiveness of enforcement under other international organisations and which state that while the Bern Convention appears to require more extensive obligations than the Nature Directives, the Directives are, in practical terms, stronger and more effective (Jones, 2012).

Stakeholders from authorities, NGOs and business associations recognise that without pressure from the EU on the implementation of the Nature Directives, unsustainable management practices would most likely have prevailed (e.g. COPA Latvia, nature authorities in Germany and Spain, and NGOs at both national (Austria, Bulgaria) and EU level (FoEE) and damaging projects would have been allowed, threatening habitats and species in spite of national protection.

The following examples demonstrate the difficulties related to the influence of short-term political interests and unsustainable management practices that would result in the absence of pressure from the EU on the implementation of the Nature Directives. These examples show that, without EU action, progress on national conservation measures for the establishment of the Natura 2000 network and compliance with the Appropriate Assessment of development projects affecting Natura 2000 sites would have been low. They were provided, in the main, by NGOs who, as presented in the State of Play (see section 3.3.1 of the Study), have a predominant role in the monitoring and enforcement of the Nature Directives. This put them in the position to provide specific examples and evidence for their responses, with all Member State NGOs making the effort to furnish examples and supporting evidence. The examples in the table below have been selected as representative cases of a situation present in most Member States, confirmed by the fact that 85% of the 2,374 reported infringements of nature legislation were based on

[757] H. Schoukens, Habitat Restoration on Private Lands in the United States and the EU: Moving from Contestation to Collaboration, Utrecht Law Review, 2015.

complaints and, thus, only 15% were initiated by the Commission. Those numbers do not include the number of complaints that are submitted by NGOs and that do not lead to infringement cases.

Box 127 Examples of effective EU enforcement action

Bulgaria: The practice shows that, without pressure from the Commission, many nature conservation measures in Bulgaria would not have been taken. The most recent example was the enforcement action by DG Environment in January 2014 requesting the Bulgarian government not to adopt the Spatial Plan of Tsarevo Municipality affecting the Strandzha SCI and SPA.

Source: Bulgarian Tourism Chamber (BTCh)

Czech Republic: The protection of the habitats and species in the upper Vltava river in Sumava National Park was only possible when the Commission initiated an infringement procedure in 2007 (case 2007/4447). The case was opened in response to a complaint from a national NGO after several national complaints were unsuccessful in stopping excessive canoeing on the river.

Germany: The Birds Directive, and the imminent entry into force of the Habitats Directive, were particularly important for the territory of the former German Democratic Republic at the time of accession. Here, during a time of political, social and legal upheaval, the Directives helped to ensure that there were regulations in place early on to counteract potential mistakes, such as non-sustainable investment decisions.

The absence of enforcement in Baden-Württemberg to ensure the protection of grassland habitats protected under Article 32 of the nature conservation act of Baden-Württemberg, required intervention by the Commission. Without ongoing enforcement at the EU level, the level of protection, it is believed, would have continued to deteriorate.
The limestone quarry 'Urberg' in Southwest Germany would have been destroyed under national legislation, since the so-called Eingriffsregelung (German Nature Conservation Act, §§ 13 and 15) does not have a mechanism to prohibit destruction outside of protected areas. While it provides for avoiding unnecessary destruction, in practice the steps of the mitigation hierarchy (compensation, compensation payment) are systematically applied and there are no known cases where this national legislation has succeeded in stopping a project detrimental to biodiversity. However, the application of Article 6(4) led the national court of Freiburg to deny the expansion of a development project which would affect the integrity of the Natura 2000 site by causing the destruction of the beech forest which hosted several protected species (including three bat species), as the argument of overriding public interest brought forward by the owner was not considered sufficient.

Greece: Infringement processes, including referrals to the CJEU and rulings against Greece, have contributed to Greece's nature conservation policy. Such processes offer a systematic and structured approach to conservation, exerting a positive influence and changing potentially harmful practices while countering internal political pressures. They also allow for civil society to have access to justice at national and EU level. While all 'major' nesting sites of the Loggerhead Sea Turtle (*Caretta caretta*) have been designated as Natura 2000 sites in Greece (including the Laganas Bay on Zakynthos), uncontrolled tourist development along the coast has dramatically reduced the beaches available for loggerhead nesting. The CJEU ruled against Greece (30-1-2002, ECJ C-103/00) for not having established and implemented an effective system of strict protection for the Loggerhead Sea Turtle on Zakynthos so as to avoid any disturbance of the species during its breeding period and any activity which might bring about deterioration or destruction of its breeding sites (required under Article 12(1)(b) and (d) of the Habitats Directive 92/43/EEC). The experience of Zakynthos in the 1990s demonstrates that had it not been for the Habitats Directive promoting a sustainable and integrated solution, Laganas Bay would have continued its uncontrolled development trend, degrading the important nesting sites. This case is a representative example for tourism impacts in Greece and in other EU Member States that exist still today.

Source: NGOs in Greece.

Poland: A landmark case in Poland is the Raspuda case concerning a bypass designed to cut through two areas of Natura 2000, established by Poland and submitted to the Commission: SPA 'Augustów Primeval Forest' and SAC 'Augustów Refugium'. No alternative route was prepared for the road. In 2007, the Commission referred the design of the bypass to the CJEU. Different poten-

tial routes of the road (passing by the Rospuda peat bog) were considered, with EIA conducted for all the variants. The selection of the route of the bypass through Raczki (which had the least environmental impact) was announced by the government in March 2010, at which time the complaint to the CJEU was withdrawn.

Source: NGOs in Poland.

Spain: Implementation of the Directives in Spain has been slower than anticipated. The January 1986 deadline for legal transposition of the Birds Directive was not met, with transposition finally taking place, with some gaps, in March 1989. The Commission initiated infringement proceedings against Spain for insufficient SPA designation, both in numbers and in surface area which led to legal action before the CJEU for non-compliance with the Birds Directive (Case C-235/04). The court's ruling, issued on 28 June 2007, declared that Spain had not complied with its obligations under Article 4 as it had not classified sufficient SPAs to guarantee the protection of all bird species listed in Annex 1, and the migratory species. As a result, Spain's current network of terrestrial SPAs was established with a delay of about 20 years (and the marine SPAs were designated in 2014, almost 30 years after the due date).
No Member State, Spain included, met the Habitats Directive 1995 deadline for proposing a set of sites to be adopted with the European Commission by 1998 at the latest. In fact, Spain is still identifying and designating marine sites as SACs/SCIs. Although a large part of the SAC network has been declared, Spain has still not approved the corresponding management plans. The Commission has opened a new infraction procedure (2015/2003), with a letter of formal notice dated 26 February 2015 (also addressed to other Member States not in compliance with Article 4(4) of the Habitats Directive). Previously, Spain had already been found guilty by the Court for not designating SACs in the Macaronesian biogeographical region (sentence dated 22 September 2011).
These examples show that, in general, progress the application of the Directives in Spain happens when the Commission demands compliance with their obligations.

Source: evidence gathering questionnaire from NGOs and nature authorities in Spain.

UK: The Strangford Lough is the most highly designated and protected site in Northern Ireland. However, management of certain aspects of wildlife and ecosystems within the Lough, particularly Horse Mussel (*Modiolus modiolus*) reefs, were the subject of concern for conservationists, who demanded Government action since the late 1980's. However, only when the Commission intervened to ensure the correct application of the Habitats Directive, initiating an investigation in 2003, was a temporary ban issued on mobile fishing gear, together with a restoration plan aimed at bringing the Horse Mussel communities back to Favourable Conservation Status. GBP 1m in funding was provided over three years to undertake the restoration work. A second complaint was brought by NGOs for lack of compliance with the management plan developed and the agreed timeline. The complaint resulted in a new restoration plan with more robust management, monitoring and enforcement measures. Again, this example shows that Member States implement the Directives when the Commission demands compliance with their obligations. This demonstrates the need for greater capacity in the Commission to take enforcement action (even if it this would require, for example, carrying out inspections).

Source: UK NGOs.

NGOs stated that the numerous infringement cases show that valuable habitats and species would have been destroyed or badly affected if the Nature Directives did not provide the necessary legal basis for them to complain to the Commission or file complaints with the CJEU. The enforcement action on implementation ensures harmonises implementation and supports the establishment of a level playing field (e.g. authorities in the Netherlands, NGOs: FOEE).

According to stakeholders (e.g. NGOs in Bulgaria, Spain, Greece, Ireland, Slovenia and the UK) EU enforcement action is still required, as the effectiveness of the infringement procedure in improving implementation and reducing damages to habitats and species in the EU is greater than that of national action. This is for several reasons, inter alia, the impartial role that the Commission plays in the assessments, and the NGOs' accessibility to EU bodies to promote the start of the EU procedure - which sometimes overcome the barriers to enforcement represented by national structures. Stakeholders refer to the need for EU enforcement action to close those national enforcement gaps (e.g. the EU

procedure for cases of infringements of the Directives is quicker and clearer). It is also recognised in literature that the legal requirements of the Nature Directive are more precise and strict, and their enforcement is much better organised at EU level than at national or international levels (Cliquet, 2005).

The EU enforcement mechanisms are also considered (NGOs in Ireland) to be more effective than those existing under other international conservation instruments (e.g. Ramsar and Bern Conventions, Convention on Biological Diversity (CBD)) – which are not supported by the tools of close integration that exist in the EU (e.g. the Commission role in bringing infringement cases to the CJEU, or the legally binding nature of CJEU rulings).

In addition, stakeholders stated that future EU enforcement action is still needed, in particular to improve implementation of the Nature Directives' obligations, such as the adoption of the necessary conservation measures (management plans, where necessary) for all Natura 2000 sites, the designation of marine sites or the achievement of Favourable Conservation Status. Other particular provisions need further enforcement as they reflect systematic breaches of EU law, such as cases related to spring hunting and trapping derogations, or to non-sustainable activities or investments that would damage unrecoverable biodiversity as a consequence of the breach of EU law (e.g. NGOs in France, Spain, Malta and the UK).

However, the literature states that there is a 'clear decline in the Commission's initiative' to enforce inadequate application of EU environmental law in general, and nature legislation in particular (Krämer, 2015). Stakeholders from NGOs and nature authorities (e.g. Spain and Slovakia) highlighted the need for the Commission's services on enforcement to take a more proactive role and promote a more fluid dialogue with national and local authorities and NGOs, in order to resolve problems at an earlier stage and reduce the number of breaches of EU law. Some claim that the Commission needs to realise its capacity to 'independently inspect how obligations of Nature Directives are fulfilled in individual member states so that it would not be dependent only on information provided by Member States or different stakeholders'. Stakeholders stated that the EU needs to allocate the necessary resouces to ensure that the Commission can properly carry out its role as Guardian of the Treaties.

9.2.3.1.3 EU action and guidance on the integration of socio-economic policies and measures

Recent Article 17 Habitats Directive reports (EEA, 2015b) point to the need for **EU action to align measures within sectoral policies** with sustainable development and biodiversity goals. Key pressures and threats impacting on habitats and species, such as agriculture, human-induced modifications of natural conditions or use of living resources (fishing, harvesting aquatic resources and aquaculture), can be reduced by ensuring implementation of integrated EU sectoral measures (e.g. under Common Agricultural Policy (CAP), Common Fisheries Policy (CFP), Energy, Transport, and Cohesion Policies). For example, public authorities (e.g. public authorities in the Netherlands) consider the poor conservation status of sites and species in the Netherlands to have been influenced by EU policies in the field of agriculture, economic development and infrastructure[758]. Nature authorities (e.g. Belgium) also state the need for EU action to ensure better coordination of environmental and agricultural policies at European level. It is acknowledged that while the Nature Directives and other EU sectoral policies, such as the CAP, CFP, Energy Policy or Cohesion Policy, can potentially be complementary, many inconsistencies and incompatibilities still remain, making better integration of sectoral policies at European level necessary.

One of the main reactions from busines, private sector or non-nature public authorities related to the lack of integration of economic considerations when implementing the Nature Directives (i.e. farmers in Sweden and Finland, and the Swedish hunters associa-

[758] Ministry of Economic Affairs.

tion). There is a need to provide opportunities for consideration of regional specificities when implementing the Directives, depending on the socio-economic development and the state of biodiversity (i.e. the Netherlands – Algemene Vereniging Inslands Hout). Similarly, nature authorities (e.g. Malta, the UK, Ulster Wildlife) and NGOs (e.g Ireland, Slovakia, Greece, WWF, EEB) state that there is a need for further integration of policies and measures in order to ensure that the objectives of the Nature Directives are fully considered in other policies and measures. According to NGOs (e.g. Ireland) the message from the recent 2015 State of Nature Report is that the EU should be doing more to ensure better integration of nature considerations into other existing policies, to address measures from sectoral policies which undermine biodiversity conservation targets and to develop more ambitious new complementary policies.

Other increasing threats to biodiversity, such as climate change or the introduction of new invasive alien species (IAS), also justify continued EU action (see section 7.1 for further discussion). The Nature Directives provide a common framework targeting specific biodiversity objectives, and are designed to promote the development of integrated measures linked to relevant sectoral policies. They provide the framework for integration of various policies affecting biodiversity protection objectives (e.g. spatial planning, sustainable farming or fisheries practices).

9.2.3.1.4 The (continued) need for EU guidance

Stakeholders highlighted that the implementation of Article 2 of the Birds Directive and Article 2 of the Habitats Directive requiring that socio-economic considerations are taken into account needs further clarification, as well as other provisions that are currently co-considered too vague to be implemented. All types of stakeholders spoke of the need for EU guidance on the implementation of Article 2 which is more detailed than the existing EU guidance on Natura 2000 management. The stakeholders, including national nature authorities (e.g. Czech Republic, Estonia, Spain, France) NGOs (e.g. Austria, Czech Republic, Finland, Slovakia, the UK) and private sector (ESPO, non-energy Extractive industry) believed that the lack of EU action at this level would cause legal uncertainty, administrative burdens, resistance and conflicts.

Those stakeholders also referedr to the need for guidance on issues related to management practices to ensure the conservations status of habitats and species in Natura 2000 sites. They stated that methodological guidance is still needed on issues associated with Natura 2000 site management, in order to clarify the Directives' requirements on the ground for certain activities, so that they are developed in line with site conservation objectives. This includes a better methodological framework for AAs. Some stakeholders (UK – Ulster Wildlife) highlighted the existence of inconsistencies and misunderstandings in implementing Article 6 of the Habitats Directive in the UK generally, as well as within Northern Ireland. This appears to revolve around interpretation of the terms 'significant' and 'integrity' under Article 6(3). Implementation in practice of Article 6(4) conditions regarding alternative solutions, reasonable scientific doubt over projects' impacts on the site integrity and to the precautionary principle, have also been raised (Energy UK and Euroelectric). In addition to the Commission Guidance documents and extensive legal judgements on their interpretation, further guidance on the application of those articles in practice seems necessary.

Methodological guidance in this field is needed to ensure that a harmonised approach and level playing field is effectively applied in practice, avoiding individual national interpretations unduly imposing restrictions on industries, or the risk that deregulation in some Member States would lead to increased competitive advantage, thereby damaging the level playing field for businesses (2013 report (Baldock et al, 2013) and several stakeholders, e.g. IMA, UEPG, ESPO, Euroelectric, NGO in Finland).

The Commission published Guidance documents on the management of Natura 2000 and the interpretation of Article 6 of the Habitats Directive from the early stages of its implementation. In addition, several sectoral Guidance documents have been approved at EU

level covering the implementation of Natura 2000 in the marine environment/fisheries and aquaculture, or relating to interactions with forests, farming, non-energy mineral extraction, water transport, ports, wind energy and climate change (see link below and section 2.3 of the study)[759]. They have been generally adopted through consultation with the main stakeholders. However, they have not been fully translated and are not systematically applied at national and local level (private sector, e.g. CEMBUREAU, Euromines; DG GROW). Their non-legally binding nature is considered a barrier for their full implementation, making EU action in this field necessary.

Box 128 Example of sectoral guidance

In 2007 ESPO published its Code of Practice on the Birds and Habitats Directives, setting guidelines and recommendations for port development projects.
(http://www.espo.be/images/stories/Publications/codes_of_practice/ESPOCodeofPracticeontheBirdsandHabitatDirectives2006.pdf)

ESPO has been cooperating closely with DG Environment and other stakeholders in the development of guidelines for the interpretation and application of the Directives in estuaries and inland waters. This has proven to be a very constructive exercise in reducing legal uncertainty. Nowadays, ports have developed clever management tools to cope with challenges in an efficient and collaborative way, and there are many examples of successful port development projects that achieved both the economic and environmental objectives. This is also recognised by environmental NGOs. Despite the good practice examples, port development projects overall have suffered significantly from increased costs, complex approval procedures and resulting delays that are not always justified by environmental benefits. Challenges remain in working with the current Nature Directives, and members of ESPO have expressed the need for further guidance (Conference held 20 November 2015).

9.2.3.1.5 EU action to further promote cooperation, coordination and sharing of best practice

As described in the sub-section above, action at EU level is considered to be a matter of ecological urgency. Wildlife does not abide by national borders and therefore its protection requires transboundary cooperation. A continued EU wide approach is likely to be more effective in addressing this challenge than isolated actions undertaken by individual Member States. Cross-border action and common standards are essential to protect migratory species (e.g. to ensure that appropriate measures are in place to protect transit routes). While European cooperation has been intensified or, in many cases, initiated, further EU action to promote cooperation approaches is needed.

Box 129 Example of Member States cooperation and transboundary cooperation

Poland: Several projects have been developed on foot of exchanges between representatives of nature authorities in different Member States (e.g. Poland, with the UK, France, Spain) to share best practice in implementation of the Directives, e.g. promoting the involvement of stakeholders in decision-making on the management of Natura 2000 sites. These projects have generated more effective implementation of the Directives, ensuring knowledge management and sharing of experiences.
Source: Polish nature authority.

Germany: Examples of transboundary cooperation include the international LIFE projects, where joint actions have been conducted with seven of Germany's eight EU neighbouring states and with at least a further five EU Member States (UK, Sweden, Finland, Latvia, Estonia).
The 'biogeographical region process' facilitates even further-reaching cooperation within biogeographical regions. For example, the German organisation of an international workshop on the integrated management plans for the North Sea estuaries for the Atlantic region.

Source: Member State authority or agency Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit.

[759] http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm accessed 17.02.16

While the impact of the Directives in promoting higher coordination at national level has been recognised (see question AV.1/2), more EU action is needed to promote a higher degree of coordinated implementation throughout the EU, sharing experiences on activities that are common to all Member States and particularly exchanges of best practice (i.e. Austria, Belgium, Czech Republic, Germany, Malta, the Netherlands, Romania, Slovakia, Sweden and the UK). Some of the main elements stakeholders believe to require coordination at EU level are:

- Financing.
- Better integration of biodiversity protection in EU funds.
- Coordination to promote capacity building and training of national law enforcement bodies.
- Raising awareness on Natura 2000 at local and national level.
- Pooling of conservation resources (such as monitoring data) and sharing of data across EU Member States, including pressures, with a view to identify common/transboundary issues which may require concerted management efforts.

9.2.3.2 EU action not required

The four private stakeholder responses all stated that there is no need for EU legislation on nature, nor for further action in this field at EU level. They believed that habitats and species protection measures applied at a local level are more effectively regulated at a national level. No evidence, however, is provided to support this opinion and, as it seems to contradict the arguments from literature and stakeholders in point 1 of this section, it is not considered any further.

Other issues raised by these groups were the negative effect of EU legislation on growth, jobs and competitiveness. Again, no data on the negative impact on growth and competitiveness were provided to support these assertions. An example provided refers to the strict approach in the implementation of the Directives to the permitting of aquaculture activities, which results in freezing the industry structure. If permits were granted, it was claimed, they would have the potential to promote a more green and ecological production (FEAP).

While the efficiency questions do not ask specifically about growth and competitiveness, they provide relevant information on these issues, as any regulation that imposes significant additional costs in an industry that trades internationally could potentially affect competitiveness, and any restrictions on plans and projects could be seen as having negative effects on growth. These issues are dealt with in question Y.1 (in relation to opportunity costs), Y.4 (disproportionate costs) and Y.7 (administrative burdens) (see section 7). The overall conclusions are that the Directives inevitably impose some costs and restrictions on business but that these are small in relation to overall costs, and that a very small proportion of plans and projects face restrictions. Some businesses welcome the Directives as providing a level playing field at EU level and a certain regulatory framework within which to operate. Therefore, as a whole, the evidence on efficiency does not suggest that the Directives restrict growth and competitiveness.

In addition, several stakeholders have provided examples and evidence on the impact of the Nature Directives in promoting innovative solutions that generate jobs linked to tourism, sustainable farming and forestry practices.

Box 130 Examples of the impact of the Directives in promoting jobs and growth

Poland: An example provided by NGOs in Poland refers to the Baycz Valley Region in Lower Silesian District, a Natura 2000 site which is an essential part of migratory routes for birds. Here, a strategy for integrating nature with growth has been developed, including the establishment of a brand for natural value-based products and services from the region. Currently, approximately 70 companies use this brand. A Local Action Group (LAG) manages the brand, supports its promotion, and acts as the Fisheries Local Action Group (FLAG) for the Fish Operational programme, increasing the generation of funds contributing to regional economic growth linked to the Natura 2000 area.

France: EU environmental legislation has helped to create and boost the 'green economy' through the creation of new roles and sectors, including new environmental professionals and new businesses. The Directives allow the promotion of biodiversity-friendly practices both within and outside Natura 2000 sites. These practices help to maintain, create and enhance economic activities in rural areas. They also help to develop businesses related to environmental engineering, tourism, animation and expertise (engineering, NSPA) and promote actors working together, e.g. in the Nord-Pas-de Calais, grazing management on limestone hillsides of SPA / SAC creates partnerships between local breeders of sheep (Boulogne breed of sheep), and projects to help social integration.

Spain:
According to Spanish NGOs, the requirements for Brown Bear conservation in Spain have generated employment, among other socio-economic effects:

- The regional authorities maintain between 5-15 staff dedicated solely to the conservation of the species in the Cantabrian Mountains. Some NGOs have also created jobs, e.g. the Brown Bear Foundation maintains between 15-30 workers each year between bear patrols, technical staff, environmental educators, and forest workers linked to the conservation of the species.
- The LIFE project funding in the associated Natura 2000 sites has provided more than EUR 9m of investment to date in 14 projects dedicated to the conservation of the Cantabrian population of the species.
- The tourism associated specifically with the environmental quality and the sighting of the species has provided five years of important economic support and employment in the associated mountain areas where the economy is often fragile. While there is as yet no economic estimate available, many small local tourism businesses, accommodation, and restaurants link their activity to the presence and positive image of the Brown Bear.

During 2013-2014, a market testing exercise was carried out by SEO/BirdLife with products specifically labelled as 'Natura 2000 Product', with the aim of determining the influence of this brand on sales. The tests were carried out in the cities of Zaragoza and Barcelona, in shops specialising in organic products and conventional supermarkets. The results showed that the majority of participants in customer surveys were prepared to pay more for the same product if it had the 'Natura 2000 Product' label. The majority were also more likely to buy the labelled product, and actual sales of the same product were significantly higher with the label than without it. The Commission and Spanish Agriculture, Food and Environment Ministry are studying the possibility of extending these successful trial results to the full market, and there is similar interest in other EU countries, e.g. France.

UK: The Sustainable Catchment Management Programme was devised to ensure the sustainable environmental management of 20,000 ha of water catchment land under United Utilities' ownership in the Peak District and the Forest of Bowland. One of the main drivers was restoration of land with SSSI and SPA status, supporting priority habitats. In recent decades, industrial pollution, drainage of the moorland peat, wildfires and agricultural practices have all had a negative environmental impact, affecting the wildlife value of the site. This has contributed to increased pollution of water drawn from the catchment, which has to be treated before it is suitable for drinking. A partnership between United Utilities, the Royal Society for the Protection of Birds (RPSB) and local farmers has developed an integrated land management approach which complies with the Habitats Regulations, enhances biodiversity and improves the quality of the water abstracted for drinking, as well as providing enhanced income for tenant farmers.

The stakeholders holding a negative opinion on the need for EU legislation, believe that the Nature Directives do not provide for an appropriate framework for socio-economic concerns to be sufficiently considered in the implementation of the Directives. The main concerns are summarised as follows:

'In a shifting legal landscape of high uncertainty, a landscape to which both domestic and European courts have contributed, the impact assessments intended by the Directives to provoke informed discussion of how developments might affect high quality habitats, and how undesirable impacts could be avoided or mitigated, have increased in number and cost and have become, therefore, objects of political criticism, even rhetorical derision. What's the point of incurring the high costs of doing well with these complex and uncertain impact assessment and project evaluation procedures if that success cannot be shown to equate with doing better for wildlife conservation?' (Wandesforde-Smith and Watts, 2014).

However, evidence from the UK (The 2012 Government Review of the Habitats and Wild Birds Directives) indicates that the problems associated with the implementation of the Nature Directives in the UK are 'few in number, and the policy is moving in the right direction to reduce those further. It is only in a relatively small number of cases that problems have arisen, leading to unwelcome delays and additional costs for developers' (Baldock et al, 2013).

The lack of integration of economic considerations when implementing the Nature Directives is the main concern for stakeholders. For example, a forest association (Eustafor) states that the EU should intervene only in cases where a solution cannot be found at national level. While it is recognised that conservation of rare species and their habitats remain a priority and are threatened by increased population, increased urbanisation and climate change, the policy sphere to ensure nature conservation, according to this organisation, is the responsibility of the Member States. While this argument does not respect the subsidiarity principle - and it is therefore not considered - it is also stated that the Directives need to be implemented with substantial financial measures to compensate and provide incentives for landowners to deliver the crucial conservation objectives and associated ecosystem services. EU action in this case is required through appropriate EU policies providing availability of funds (e.g. under CAP, CFP, Cohesion Policy) and national level decisions on allocation of such funding (see sections 6.2 and 8.6). Other organisations (i.e. CEPF) have stated their preference for a far-reaching deregulation and creation of market-based incentives, accompanied by a societal reward for the ecosystem services of forestry. In this sense, EU action is required to clarify and promote the availability of financial resources to support sustainable forestry efforts.

9.2.4 Key findings

- 64 responses to this question in the evidence gathering questionnaire were received from stakeholders in the national authorities, the private sector and NGOs. Of these, 55 considered action at EU level to continue to be necessary. Only four responses stated that no action is required at EU level. Of the remaining responses, the information provided did not address the question.
- Scientific evidence shows that EU level intervention through the Birds and Habitats Directives has been effective at arresting the rate of loss of biodiversity; however, indicators such as the 2015 State of Nature Report, show that biodiversity loss is still continuing. EU action for the preservation and restoration of Europe's biodiversity remains necessary and even urgent given that monitoring data shows a continued decline of biodiversity in the EU.
- Wildlife does not abide by national borders and its protection, therefore, requires transboundary cooperation. This will not change, making a continued EU wide approach likely to be more effective in addressing this challenge than actions undertaken by individual Member States. This is particularly relevant for migratory birds and other mobile species (i.e. in the marine environment). The protection provided by EU legislation to species across the whole of their migratory route goes beyond the protection that would be possible for these species at national level.

- Enforcement of the requirements of the Birds and Habitats Directives by the Commission and the CJEU has been instrumental in ensuring the transposition and implementation of the Nature Directives, particularly in cases where national measures were not taken to address the conservation objectives, or where further action was needed to close enforcement gaps. Without EU pressure regarding full implementation of the Nature Directives, stakeholders from NGOs and nature authorities stated that it is highly unlikely that unsustainable management practices would stop. In fact, a more proactive role for the Commission's services was raised by some stakeholders from nature authorities and NGOs.
- Recent Article 17 Habitats Directive reports point to the need for EU action to align measures within sectoral policies with biodiversity goals. Key pressures and threats impacting on habitats and species, such as agriculture, human-induced modifications of natural conditions or use of living resources (fishing, harvesting aquatic resources and aquaculture), can be reduced by ensuring implementation of integrated EU sectoral measures (e.g. under CAP, CFP). The Nature Directives provide a common framework for achieving biodiversity objectives, designed to promote the development of integrated measures linked to relevant sectoral policies.
- Stakeholders highlighted the need to effectively integrate environmental, social and economic challenges at EU level. Some respondents from new Member States held the view that additional EU action is required to clarify some provisions of the Directives that remain too vague to implement, or which need interpretation (e.g. taking into account socio-economic and regional considerations in the implementation of the Directives). Lack of EU action at this level would cause legal uncertainty, administrative burdens, resistance and conflicts. The need for additional methodological guidance and improved dialogue at EU level was also highlighted.
- According to several stakeholders, EU action is also still needed to improve implementation of the Nature Directives in Member States, for example to guide and promote better methodological frameworks for AA, effective site management and monitoring of Favourable Conservation Status, international information and data exchange, and quicker and clearer procedures in cases of infringements of the Directives.
- A lack of EU action could lead to situations where some Member States would use deregulation to gain competitive advantage, thus negatively impacting the level playing field for businesses. EU level intervention is supported by business because of the advantages that this brings for the single market and environmental protection.
- EU level action is also justified to promote coordination, sharing of experiences or common activities that are considered elements of high value. Coordination at the EU level is important also with respect to financing and cross-sector coordination.
- Public concern across the EU about the environment remains high, as does public support for EU level action to tackle environmental problems.
- The few responses to the evidence gathering questionnaire from the private sector stakeholders which consider there to be no further need for action at EU level, are based on the assumption that habitats and species protection measures are more effective at a national level. No evidence, however, was provided to support this opinion. Other issues raised by this group were the negative effect of EU actions on growth, jobs and competitiveness, as well as insufficient consideration of socio-economic concerns in the implementation of the Directives. They also pointed to the absence of flexible mechanisms to facilitate changes in the Annexes of the Directives and adapt them to progress.

10 Conclusions

This chapter summarises the key conclusions from the analysis. The study conclusions are based directly on the evaluation of evidence conducted for each of the questions in the evaluation mandate. Each question was evaluated according to judgement criteria established by the evaluation team at the beginning of the project, and these criteria have guided the process of gathering evidence, as well as the synthesis and analysis of evidence.

Sources of evidence for this evaluation have included a wide range of literature, studies, legislation and policy documents and other relevant publications, including those supplied by stakeholders and the public. The evaluation has also sought input from a wide range of stakeholders and the public through a targeted evidence gathering questionnaire, National Missions to 10 Member States, focus groups, an online public consultation and a stakeholder conference. The broad and open approach to consultation has resulted in a very large evidence base, not all of which is comprehensive or representative of the situation in all Member States. The evaluators placed more weight on the views of stakeholders where these were supported by evidence. Stakeholders from certain Member States – particularly in the North and West of the EU – had a tendency to provide more examples based on case studies and published research, resulting in a stronger evidence base in some parts of the EU than others. Another limitation was the gaps in quantitative data for the assessment of costs and benefits. Finally, the lack of ex-ante assessment setting the Directives' baseline made it difficult to establish a clear counter-factual scenario for the identification of the Directives' EU added value, effectiveness or proportionality of costs and benefits. More details about the methodological context in which these conclusions have been developed can be found in section 4 of this report.

This chapter first presents the main conclusions for each of the five evaluation criteria: effectiveness, efficiency, relevance, coherence and EU added value. The second section highlights what has worked well according to the expected results, as well as those expectations that have not been fully achieved in relation to the specific objectives of the Directives as presented in the intervention logic. The third section directly addresses the fundamental question of the Fitness Check: whether the Nature Directives are fit for purpose, while the final section describes some of the priority areas for improvement in implementation of the Nature Directives.

10.1 Main conclusions for each evaluation criterion

This section summarises the main findings presented in sections 5 - 9 of this report, in which the assessment of the implementation of the Nature Directives is structured according to the evaluation mandate questions and the five primary evaluation criteria. Key conclusions for each criterion are presented below. The full range of evidence and arguments to back up each of the conclusions can be found in sections 5 - 9 of the study, with the relevant question(s) indicated in the text below.

10.1.1 Effectiveness

The effectiveness criterion concerns the extent to which the objectives have been met, and any significant factors that may have contributed to or inhibited progress towards meeting those objectives. Here, 'objectives' refers to both the general objectives as well as the specific and operational objectives of the Nature Directives.

Considerable progress has been made in the implementation of the Directives' measures, particularly the creation of the terrestrial component of the Natura 2000 network, the

legal protection of Natura 2000 sites, the protection and sustainable use of species and supporting research and monitoring. Slower progress has been made with the establishment of Natura 2000 sites in the marine environment, the establishment of site conservation measures including management plans, and financing mechanisms. There is little evidence that the Directives have contributed to the management of features of the landscape outside of Natura 2000 that are important for species of fauna and flora (see section 5.1).

The impacts of the measures to-date are not yet sufficient to meet the overall aims of the Directives. Monitoring by Member States up until 2012 indicates that while improvements have been reached in the rate of some habitats and species at unfavourable conservation status, the decline of some habitats and species has not been halted. 52% of bird species have a secure population, 17% are threatened, with a further 15% near threatened, declining or depleted. Of Habitats Directive Annex 1 habitats, 16% have a Favourable Conservation Status, with most others being classified as having an unfavourable-inadequate status (47%) or unfavourable-bad status (30%). Of the species listed in Annex II of the Habitats Directive, 23% have a Favourable Conservation Status, with most species having an unfavourable-inadequate status (42%) or unfavourable-bad status (18%). Evidence suggests that the Directives have had least impact in the wider countryside, particularly in agricultural habitats (see section 5.1).

Despite their limited progress to date, there is robust evidence that, where fully and properly implemented, the Directives have effectively reduced pressures on biodiversity, slowed declines and, with time, led to some recoveries of habitats and species (see section 5.1).

The Directives are by far the most important component of the EU's nature conservation policy framework and are making a major contribution to the EU's headline biodiversity target, as well as each of its specific domestic targets (Targets 1-5 of the Sustainable Development Strategy). They contribute directly, through the conservation of EU protected habitats and species, and indirectly, through the protection of many more species that occur in the targeted habitats, especially in Natura 2000 sites but also to some extent in the wider environment. The ecological restoration of Natura 2000 sites benefits many species, as well as making an important (although unquantifiable) contribution to the EU's ecosystem restoration and Green infrastructure targets (Target 2). However, the Directives alone cannot (and are not intended to) deliver the EU 2020 goal of halting the loss of biodiversity without complementary action, especially in other key policy sectors such as agriculture and fisheries (see section 5.2).

The availability of funding has probably had the most significant influence on the implementation of the Directives. The increase in funding available at national and EU level stimulated by the Directives (such as the LIFE programme and the rural development policy under the CAP, including agri-environment measures) has been vital, but major shortages continue to limit progress, especially in the establishment of conservation management measures. Other factors that have constrained progress include the degree of political support for the Directives, uncertainty over the Directives' requirements, inadequate stakeholder consultation and involvement, knowledge limitations, the unintended impacts of certain incentives and subsidies in other policy sectors, inadequate enforcement, and the limited expertise and capacity of nature authorities and other institutions involved in the implementation of the Directives (see section 5.3).

The Directives have brought about unintended changes which, although not required in the legislation, have nonetheless impacted on its effectiveness. A key positive change beyond expectations (see section 5.4 regarding legislator's and stakeholders' expectations) is increased public awareness and stakeholder participation in nature protection and management. While socio-economic operators have not been consistently involved in all Member States, positive examples highlight the opportunities the Directives provide for the development of appropriate mechanisms by which to involve socio-economic stakeholders. Whilst some local conflicts have occurred, they have encouraged more integrated management of nature with socio-economic activities, generating business op-

portunities and new governance approaches that have the potential to be developed further. The high numbers of cases brought to national or EU courts have generated a higher level of compliance and case law clarifying the interpretation of the legislation, but have also created risk-averse decision-making with respect to permits and authorisations for projects or activities, causing unnecessary delays. The sectorial guidance developed by the Commission, together with stakeholders, has been instrumental in clarifying the conditions for such activities to be carried out within Natura 2000 sites, however, their poor distribution at local level and their non-mandatory nature have limited their impact (see section 5.4).

10.1.2 Efficiency

Efficiency is essentially concerned with the relationship between the costs of implementation of the Directives and the results or benefits achieved. The central question here is whether the costs involved in the implementation of the Nature Directives are reasonable in relation to the objectives pursued and the results achieved (benefits). Both 'costs' and 'benefits' can be monetary and/or non-monetary.

Implementation of the Directives involves significant costs, divided between administrations and economic operators affected:

- The direct costs of fully designating, protecting and managing Natura 2000 sites were estimated by Member States at EUR 5.8bn annually across the EU in 2010, and subsequent estimates broadly support this figure (see section 6.1).
- Opportunity costs can arise where the protection of sites and species restricts development, land use change and land management. These are highlighted as a concern by many businesses, although data from several Member States indicate that fewer than 2% of development projects have faced restrictions or required revision as a result of concerns about their impacts on Natura 2000. In many parts of the EU land managers are compensated for restrictions on agriculture and forestry, but an absence of sufficient compensation in other areas is a cause for concern among both businesses and environmental groups, and presents a barrier to effective implementation (see section 6.1).
- The costs of damage caused by some protected species (e.g. large carnivores) and associated compensation payments can be significant at local level, and, while accounting for a small proportion of overall costs, are highlighted by some stakeholders as a significant concern (see section 6.1).
- The administrative burdens of achieving compliance with the Directives' site and species protection rules are significant. Effective implementation by competent authorities is dependent on the collection, analysis and sharing of information, interactions with stakeholders and consideration of plans and projects, making administrative burdens inevitable. Businesses and environmental groups differ in their views on whether there are substantial unnecessary burdens, but share the view that burdens are often caused by inefficient implementation at national, regional and local level (see section 6.7).
- Costs in different categories vary widely across the EU due to a range of environmental and socio-economic factors, including differences in the size of the Natura 2000 network within and between Member States, and the approach to implementation (see section 6.3).
- There are numerous examples of cost-effective implementation practices which help to reduce costs, including effective consultation and stakeholder engagement, partnership approaches, strategic planning, and guidance, as well as coordinated collection and sharing of information. Many of these examples occur in particular sectors, such as ports and renewables, which have considerable experience in developing cost-effective ways of working within the requirements

of the Directives. However, a range of other businesses continue to express concerns about the potential costs or restrictions that may be imposed by the Directives (see section 6.5).

Appropriate implementation delivers substantial benefits:

- Core benefits are the protection and improvement of the conservation status of habitats and species (see section 6.1).
- Protection of sites and species helps to safeguard and enhance the delivery of ecosystem services with related benefits to wellbeing. These benefits were estimated at EUR 200-300bn per year for the Natura 2000 network in 2011, though challenges in valuation mean that this should be regarded as indicative (see section 6.1).
- Implementation brings benefits for local economies through job creation and tourism. Natura 2000 sites attract estimated annual expenditure on tourism and recreation of EUR 50-85bn (see section 6.1).

Some caution is needed in interpreting estimates of costs and benefits, given the methodological challenges in quantification and gaps in the evidence base. Nevertheless, the best available studies indicate that the benefits of the site and species protection ensured by the Directives greatly exceed the costs of implementation at the EU, national and local levels. However, few studies have directly compared the costs and benefits of the specific actions required to implement the Directives. Those suggested that the benefits of action exceed the costs at most, but not all, sites. Responses to the evidence gathering questionnaire and online public consultation, particularly from businesses, highlighted several examples where the costs of implementation were viewed as disproportionate to the benefits (see section 6.4).

The Directives have enhanced the delivery of funding for nature conservation in the EU and, without them, financing for site, habitat and species conservation would have been far less. However, all groups of stakeholders emphasised that a severe shortage of funding, and constraints in uptake, inhibit progress towards the objectives of the Directives. Funding shortages are highlighted across all Member States, and are particularly apparent in the ongoing management and monitoring of the Natura 2000 network, which relies greatly on additional finance for site protection and management activities. The current funding gap is so large that achievement of the objectives of the Directives will not be possible without a very significant increase in funding (see section 6.2).

Non-implementation of the Directives would be expected to lead to a gradual erosion of the benefits of the sites, habitats and species protected by the Directives, including a loss of ecosystem services which would accumulate in value over time. It has been estimated that even a 1% reduction of the ecosystem services stemming from the Directives would cause losses of EUR 2-3bn a year, which would accumulate over time (see section 6.6).

Despite an increase in research and monitoring activities, significant gaps in knowledge have led to implementation problems and delays and contributed to costs and burdens. Key knowledge deficiencies include data and information to support the identification of marine SPAs and SCIs and the potential impacts of certain human activities on some species, and the location of EU protected species and habitats outside Natura 2000 sites (see section 6.8).

10.1.3 Relevance

Relevance concerns the extent to which the objectives of the Nature Directives are consistent with the needs of species and habitats of EU conservation concern. It considers whether the objectives and requirements of the legislation are still valid, necessary and appropriate.

The provisions of the Directives, if well-implemented, form a framework capable of addressing the key problems faced by habitats and species. The Directives' approach is not problem-specific and requires Member States to take measures within their discretionary power to prevent adverse effects on habitats and species, irrespective of their cause. According to the 2015 State of Nature report based on Member State reports, the most frequent pressures on European protected habitats and species are linked to habitat loss, fragmentation and degradation resulting from land use change, especially from agriculture. Pressures also frequently result from forestry, hunting, fishing, building and energy development and extractive industries. Additional pressures come from invasive alien species affecting some species groups and habitats, while climate change represents an emerging threat. The nature and extent of some of these pressures means that the Directives cannot address them in isolation and need to be integrated with coherent policies in other sectors (see section 7.1).

Stakeholders generally agree that the Directives' aims and overall approach remain valid and appropriate. However, some stakeholders consider that the Annexes should have been further updated to reflect improvements in the conservation status of species, gaps in coverage of threatened species and taxonomic changes. The case for removing species or downgrading protection status is especially controversial, as many species are likely to be dependent on ongoing conservation and protection, and therefore a precautionary approach would be appropriate for them. The extent to which there is a real need to expand the Annexes and update them according to technical developments is uncertain, but it seems likely that conservation benefits would be modest at best, given the umbrella effect of the Directives. Issues concerning outdated taxonomy and other technical issues have been addressed through advice from the ETC-BD and are no longer a significant barrier to the efficient implementation of the Directives. Therefore, the nature conservation benefits of updating would probably be outweighed by the implementation delays that such an update would cause. Updating the Annexes would also give rise to legal uncertainty and additional costs and burdens for authorities and business. The balance of evidence therefore suggests that updates would be currently counter-productive in both nature conservation and economic terms (see section 7.2).

The Directives make positive contributions to sustainable development broadly, as well as to specific related goals, such as resource management and health and social benefits. They have been designed to allow economic development in situations where it is compatible with the Directives' biodiversity objectives. Although the Directives give primacy to biodiversity objectives in certain decision-making, no evidence has been provided to show that this significantly constrains overall sustainable development. Such sustainable development could be further facilitated, however, by increasing knowledge of the location of EU protected habitats and species, identifying potential conflicts early in the development planning cycle and improving Appropriate Assessment procedures (see section 7.3).

There is a strong consensus among Europeans about the importance of nature protection. According to the 2015 Eurobarometer – 'Attitudes of Europeans towards biodiversity', a significant majority (80%) of Europeans consider the decline and possible extinction of animals, plants, natural habitats and ecosystems to be a serious problem in Europe. Furthermore, a significant majority of Europeans (77%) consider EU environmental legislation necessary for protecting nature in their country. Most Europeans think that neither their national governments (70%) nor the EU (56%) are doing enough to protect the environment (2014 Eurobarometer – 'Attitudes of European citizens towards the environment'). The overwhelming majority of Europeans (89%) believe that areas where nature is protected should be expanded, with about as many (88%) supporting the strengthening of existing nature and biodiversity conservation rules (2015 Eurobarometer – 'Attitudes of Europeans towards biodiversity'). The interest of EU citizens in nature is further demonstrated by the unprecedented participation rate in the online public consultation carried out for this evaluation, which received more than 550,000 responses. While the online public consultation is not a representative survey and does not have statistical value, it showed the breadth of contrasting views related to different interests, as well as

an overwhelming majority of 520,000 citizens stating that the Directives are important for conserving nature (see sections 7.4 and 7.5).

10.1.4 Coherence

Evaluating the coherence of legislation, policies and strategies means assessing if they are logical and consistent internally (i.e. within a single Directive), with each other (i.e. between the two Directives), and with other legislation, as well as with relevant policies. This includes examining whether there are significant contradictions or conflicts that stand in the way of the proper implementation of the Directives, or which prevent the achievement of their objectives.

The Birds Directive and the Habitats Directive are largely coherent internally and with each other, despite some differences in scope and wording of specific and operational measures. Ultimately, both aim to contribute to ensuring biodiversity as an EU target to be reached in coordination with other EU instruments and policies, and the EU guidance has harmonised the use of analogous standards such as Favourable Conservation Status. The protection regime for SPAs and SACs has been harmonised through Article 7 of the Habitats Directive. Some of the differences between the Directives (e.g. site designation procedures and timing, de-classification of sites, procedures for amending the Annexes) have not led to any inconsistencies in practice. The inconsistencies that have emerged due to differences in approach or wording (e.g. conditions related to species protection derogations) have been addressed through the rulings of the European Court of Justice (CJEU) and Commission guidance[760] over the years (section 8.1).

The Nature Directives are applied in coordination with other EU environmental legislation and policies. Particularly important are the horizontal instruments, namely the Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA) and Environmental Liability Directives, as well as legislation and policy in key water, marine and climate change areas (see sections 8.2 and 8.3). The objectives and goals of these instruments are coherent with the Nature Directives, although coordinated implementation in practice is required to achieve the best outcomes. Improvements in coordination and management could also reduce the administrative burden, for example in reporting.

The picture is mixed when it comes to policy areas beyond the environment (see section 8.4). There are many opportunities for EU funding of biodiversity and Natura 2000 across different instruments, however, only the LIFE programme provides dedicated support to biodiversity and Natura 2000 as a primary objective, with other EU funding instruments primarily targeting EU goals on rural, regional, infrastructural, social and scientific development. Evidence is mixed on the extent to which nature and biodiversity are successfully integrated into the funding programmes, as this depends on priority-setting at national and regional levels, and the capacity of stakeholders to absorb funds. Nor is there a clear understanding of the amounts of funding dedicated to nature and biodiversity, due to the multiple effects of certain measures and the complexity of monitoring and tracking systems (see section 8.6).

The Common Agricultural Policy (CAP) for 2014-2020 is potentially complementary with the Nature Directives, as some of the CAP's incentives and associated environmental conditions (e.g. cross-compliance) can be beneficial for biodiversity and can constrain harmful practices, although much depends on Member State implementation choices. For example, direct payments, as well as payments for areas facing natural and other specific constraints, can potentially support farming systems associated with certain European protected habitats and species, although eligibility rules have led to unintended biodiversity damage in some areas. Pillar 2 funded measures, and especially agri-environment-climate schemes are the primary means of supporting management practices that are beneficial to biodiversity. Without such support via the CAP, the conservation status of agricultural habitats and species would be worse than it currently is. However, as the

[760] http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

status of many protected habitat types and species dependent on farming continues to decline, the CAP could contribute more to the goals of the Nature Directives, especially if relevant streams of Pillar 2 funding were increased and Member States better tailored and targeted their measures towards site-specific biodiversity priorities. Some Pillar 2 measures have in the past had detrimental biodiversity impacts in some cases (e.g. afforestation of sensitive habitats, irrigation), however, the new 2014-2020 CAP and rules and conditions for CAP Rural Development Programmes have been designed to avoid such impacts, if supported by proper checks and controls (e.g. through EIAs) by Member States. It is as yet too early to determine the extent of this effect (see section 8.4.3.1).

Cohesion Policy has both positive and negative impacts on the objectives and implementation of the Directives. It provides funding to directly support their objectives (e.g. conservation measures, investments in green infrastructure and nature based solutions) but also for activities that may threaten nature objectives, such as transport, energy and other infrastructure. Environmental protection is mainstreamed horizontally (including via SEA, EIA) into Cohesion policy to identify and address these threats.

Other areas of economic activity, such as energy, transport and non-energy extractive activities, can impact habitats and species. In the energy sector, EU policies calling for a shift towards low-carbon energy use encourage the development of infrastructure for the production and distribution of energy from sources such as biofuels, wind power, and hydropower. These can have negative impacts on habitats and species. Detrimental effects can also arise from transport policy, due to incentives for the construction of road, rail, waterborne, port and other transport infrastructure. Extractive industries, such as mining, which support the EU's raw materials strategy, can also have negative impacts if not carried out with care. There are good examples of ways to prevent/reduce such impacts in Commission Guidance documents (e.g. on wind energy and Natura 2000 and on environmental assessment for energy network infrastructure), and through stakeholder initiatives such as the Renewables Grid Initiative (RGI), bringing together Transmission System Operators (TSOs) and NGOs. In some cases, however, industry stakeholders mentioned that the Commission guidance is insufficiently used, due to lack of broad distribution and awareness, and its non-mandatory nature (see section 8.4).

With regard to fisheries, the current legal framework, in contrast to previous legislation, is considered coherent with the Directives. However, the most recent (2013) reform of the Common Fisheries Policy (CFP) still has to deliver results on the ground. Certain provisions under the previous CFP acted as a barrier for Member States to adopt conservation measures and restrict certain fishing practices, however these are addressed by the new CFP (in particular Article 11 of the Regulation on CFP). This, along with the current progress in site designation allows for greater coherence between CFP and the objectives of the Nature Directives. Despite learning from the terrestrial Natura 2000 sites and the increased involvement of stakeholders, the establishment of conservation measures in marine sites (or management plans when needed) that would include sustainable fisheries management measures remains challenging, given the lack of scientific data, inconsistent approaches across Member States and conflicts of interests between nature protection and fisheries sectors, particularly where measures are required to cover areas that are not part of the Natura 2000 network.

There is limited evidence available on the impact of the Directives on the EU internal market. The common approach provided by the Directives is considered by NGO stakeholders in particular as essential to avoid a 'race to the bottom' in environmental standards while giving business legal certainty. However, some business stakeholders highlighted the fact that different implementation approaches across Member States have left some economic operators at a disadvantage and have prevented a level playing field.

With respect to international and global commitments on nature and biodiversity, the Directives are generally assessed as coherent. However, a few inconsistencies have been

identified (such as the lists of marine protected species) that require alignment with the Directives to ensure EU implementation of these international commitments.

10.1.5 EU Added Value

Evaluating the EU added value means assessing the benefits/changes resulting from implementation of the Nature Directives which are additional to those that would have resulted from action taken solely at national and/or regional levels (see section 9.1). It aims to determine whether EU action is still needed to achieve the objectives of the legislation (see section 9.2).

The literature reviewed and the responses to the evidence gathering questionnaire all recognise that the Directives have introduced innovative changes that provide added value to what would have resulted without the EU legislation. The transnational character of nature and its valued components continues to justify EU level action as a more effective way to achieve the conservation objectives of the Directives, particularly through joint action on site protection for habitats and species of EU importance.

The establishment of Natura 2000 as a coherent network based on scientific approach and information, with the concept of Favourable Conservation Status and of 'biogeographical regions' is an innovative and functionally valuable initiative that has led to a substantial increase in the extent and coherence of land and marine protected areas. However, the added value of such a network has been reduced by the delays in the selection and designation of the Natura 2000 sites and the adoption of the necessary conservation measures, making the development of integrated policies more difficult.

A flexible approach has also been introduced by the Directives, whereby socio-economic factors are equally considered within site management across member states and operators, provided that biodiversity objectives are respected. Private sector stakeholders have raised concerns about the extent in which socio-economic factors are into account and called for more guidance from the EU. The transnational species protection standards set up under the Directives have led to the control of illegal hunting practices and to the reversing of declines across a range of bird species. Evidence from examples in countries outside the EU shows that such levels of protection would likely have been impossible if Member States were acting individually, without the requirements of the Directives. The standards of protection are generally higher than those previously existing in national systems. Furthermore, the Directives set up harmonised standards of protection and requirements, without which there would have been a patchwork of differing regulations and requirements for development across the EU, interfering with the functioning of the internal market. More transparent approaches would improve this further.

Through EU level cooperation and guidance, the Directives have led to greater depth, breadth and availability of knowledge and data, increased public awareness and stakeholder participation and increased use of public funding for biodiversity. Despite progress on these aspects, the situation is not optimal, mostly due to implementation approaches and choices at national level and insufficient support at EU level..

EU added value is dependent on the effectiveness and efficiency of the Nature Directives in achieving their objectives as expected. Delays and failures in implementation of the Nature Directives, lack of integration and shortage of funding available (as described in previous sections) limit the full potential of the Directives' EU added value.

Action for the conservation and restoration of Europe's biodiversity remains necessary and even urgent, given the continued decline of biodiversity in the EU. Evidence points to the need for action at EU level to strengthen policy integration and to address potentially counter-productive impacts of sectoral activities which can be addressed through revised EU level policies (e.g. CAP, CFP). Evidence and stakeholders' opinions both point out that without EU enforcement and pressure the implementation of the Nature Directives would have been weaker, with these positive results justifying further EU action in this field.

10.2 What has worked well and what hasn't worked well?

This section highlights those aspects that have worked well according to the expected results and those expectations that have not yet been fully achieved in relation to the Nature Directives' general, specific and operational objectives (as presented in the intervention logic in section 2.3). For the general objective and two main specific objectives (namely site protection and species protection), a description of how the relevant operational objectives have implemented is provided.

10.2.1 Overall aim, objectives and approach

The Directives contribute in important ways to the key biodiversity and nature protection goals of the EU. The introduction of the concept of maintaining and restoring habitats and species at Favourable Conservation Status as the overall aim of the Habitats Directive has been fundamental, as it forms a clear and measurable general objective to which all of the Directives' measures should contribute. Although a definition of Favourable Conservation Status is provided in the Habitats Directive, Member States remain responsible for its interpretation and the setting of national / regional criteria against which the achievement of Favourable Conservation Status is judged. Evidence indicates, however, that this has not yet taken place in many Member States. This has constrained the development of site conservation objectives and measures, including management plans, along with the assessment of potential impacts of proposed projects and plans on Natura 2000 sites and strictly protected species in the wider environment.

The Directives' obligation to take into account economic, social, and cultural requirements facilitates their contribution to sustainable development and the Europe 2020 Strategy, which aims to create the conditions for smart, sustainable and inclusive growth. The Directives also contribute to sustainable development through their indirect protection and enhancement of ecosystem services and Green infrastructure, for example, the creation and maintenance of recreational areas essential for health and wellbeing. Effective implementation of this objective is challenging and requires integration with other policies, as described below.

The Nature Directives include a range of operational objectives which require Member States to take specific actions, including the establishment, protection and management of the Natura 2000 network, the protection of landscape features of importance for the coherence of the Natura 2000 network, the protection of species, and a number of supporting measures (e.g. funding, research and public awareness-raising). Together these form a coherent framework capable of effectively addressing the key problems facing habitats and species. Progress on some of these objectives has been insufficient for a variety of reasons, including inadequate funding and insufficient integration of the Nature Directives' objectives into other sectoral policies (as described above). Nevertheless, the number of breaches of the Directives reported to the Commission has decreased over time, indicating that the implementation of the Directives has evolved and improved substantially, most likely due to a combination of guidance and lessons learned from experience, enforcement actions and interpretation of the legislation by the CJEU. Today the terrestrial Natura 2000 network is regarded by the Commission as largely complete, with full designation about to be completed (European Commission, 2014j). The adoption of conservation measures, including management plans if Member States deem them necessary, should provide the right conditions for improved conservation results and better integration of socio-economic measures and policies.

Notwithstanding this evolution, a compliance deficit remains and continued enforcement action is required to ensure that the expected results of the Nature Directives are fully achieved. With most obligations subject to deadlines now implemented, the focus of enforcement will move to bad application of the Directive's protection measures, which requires better information on implementation, as recognised by the Commission[761].

10.2.2 The protection and management of sites within the Natura 2000 network

The site protection provisions of the Nature Directives require the establishment, protection and management of 'a coherent European ecological network' of sites (the Natura 2000 network). It covers Special Protection Areas (SPAs) under the Birds Directive and Sites of Community Importance (SCIs), later designated as Special Areas of Conservation (SACs) under the Habitats Directive.

The Natura 2000 network focuses on the conservation and sustainable use of particularly important areas for certain EU protected species and habitats. SPAs and SCIs must be selected on the basis of scientific criteria and a biogeographical approach. This coordinated and consistent approach to the establishment of an EU wide network has facilitated the objective identification of sites and has been fundamental in contributing towards its coherence. The approach is ambitious and requires extensive up-to-date spatial data on the location of species and habitats, and considerable discussion between Member States and the Commission. These factors, in addition to legal uncertainties (some already addressed by the CJEU), have contributed to the slow development of the network, considerably delaying the process established by the Directives, and continuing to constrain the identification of some sites, particularly in the marine environment. Notwithstanding these difficulties, Natura 2000 is the largest supra-national protected area network in the world, covering some 18% of EU land area (exceeding the Convention on Biological Diversity requirements for 10% coverage).

The top-down, science-led approach has not been without its problems. Many Member States did not sufficiently inform and consult with landowners and other stakeholders with regard to the implications of Natura 2000 site designations. This led to numerous objections to many of the proposed SCIs, delaying the establishment of SACs, and, in turn, the development of site conservation measures, management plans and management agreements with landowners. Over time, this has led to a tendency to engage with stakeholders early in the process, which, despite taking time and resources, results in better outcomes for nature conservation and stakeholders in those Member States taking this approach.

The Nature Directives require more than the protection of sites from development. Member States are required to take the necessary conservation measures including, if necessary, management plans and through appropriate statutory, administrative or contractual measures for the SACs (Article 6(1)) to maintain or restore the relevant habitats and species to Favourable Conservation Status. This is especially important in the EU, where many habitats and species are dependent on appropriate forms of ecosystem management, such as the continuation of traditional low-intensity farming systems and practices. Member States' failure to develop the required conservation measures jeopardises the implementation of the Directives and the integration with socio-economic activities and policies. At the time of writing, infringement procedures have been initiated by the Commission for eight Member States with respect to the designation of SACs and establishment of the necessary conservation measures.

[761] European Commission 2012. Improving the delivery of benefits from EU environment measures: building confidence through better knowledge and responsiveness. Communication from the Commission, COM(2012)095 final, 7.3.2012.

Member States have discretion in deciding on the most appropriate ways of ensuring site management, with most choosing to develop some form of management plan. Numerous cases show that these plans are valuable when they are carefully prepared and tailored for each individual site, adopted through a participatory process with all concerned stakeholders, and include the possibility for economic activities to be carried out while respecting or supporting the site's conservation objectives. However, problems have occurred where generic plans have been developed centrally by national and regional authorities or consultants without adequate stakeholder involvement. Problems also arise where nature conservation management plans are not sufficiently integrated with, or considered by, other sectoral plans, such as forest management plans or equivalent instruments, despite having been developed, in some cases, by the same authority.

While the Nature Directives aim to protect the habitats and species for which the Natura 2000 sites were identified, designation as a SPA or SAC does not necessarily require that the site be treated as a strict nature reserve. Rather, the site protection provisions in Article 6 of the Habitats Directive (which also apply to SPAs) allow a more flexible approach that allows sustainable development where it is compatible with the conservation objectives of the sites in question, taking into account the precautionary principle and the polluter-pays principle.

Some stakeholders have referred to cases where primacy given to biodiversity objectives in decisions on the acceptability of proposed projects and plans affecting Natura 2000 sites has resulted in unnecessary constraints on development. However, the available evidence suggests that these provisions have not been a significant constraint on overall development. At the same time, there have been cases where proposed developments have not undergone Appropriate Assessment, resulting in damage to Natura 2000 sites.

Indeed, there was initially some legal uncertainty about the requirements of Articles 6(3) and 6(4) which led to numerous enforcement actions at national level and infringement cases at EU level, but case law, along with the development of Commission and national guidance and improved data and experience, have addressed many of these problems over time. Evidence now indicates that procedures for Appropriate Assessment of the impacts of plans and projects on Natura 2000 sites are generally working well, especially where Member States have invested in developing their knowledge base, staff resources and capacity. At the same time, there is further room for improvement, particularly with regard to data collection and sharing, the clarification of Favourable Conservation Status standards and site conservation objectives to better target assessment procedures, guidance on integration of socio-economic considerations and early identification of potential conflicts through procedures such as spatial planning and Strategic Environmental Assessment (SEA).

There is some evidence that the provisions of Article 6(4) are less rigorously implemented and enforced. Some legal studies have suggested that the interpretation of imperative reasons of overriding public interest is too broad, and that guidance is needed to clarify and harmonise the approach taken in practice. Further guidance also seems to be needed on conditions for alternative solutions, reasonable scientific doubt about projects' impacts on the integrity of Natura 2000 sites, the precautionary principle, and requirements for compensation measures. More effective enforcement at the Member State and EU level also appears to be necessary to ensure harmonised implementation of these rules.

A more fundamental and long-term problem with the establishment of the required conservation measures for sites has been the widespread lack of adequate funding. As most terrestrial sites require some form of management (and often restoration) by the landowner, or feature restrictions on use/management, this has undoubtedly constrained practical actions and led to some uncompensated costs for landowners. This has, in turn, exacerbated conflicts over the designation of the sites and restrictions on activities. By contrast, in areas where funding has been provided (e.g. through well designed and tailored agri-environment schemes under the CAP), this has helped to maintain and restore habitats and species (and their associated ecosystem services), while at the same time providing support for rural communities.

Based on information provided by the Member States, it is estimated that annual funding of EUR 5.8bn is required to implement the network fully across the EU. While this is a relatively small sum compared to the size of the main EU funds and overall national budgets, a significant shortfall in current financing is a major barrier to the full implementation of the network. Article 8 of the Habitats Directive sets out the framework for assessing financing needs for the implementation of site conservation measures required under Article 6(1), including co-financing from the EU budget. For such co-financing to be available, however, nature and biodiversity objectives have to be fully integrated into strategic planning and programming under a range of EU sectoral funds (e.g. the Structural and Cohesion funds, the EAFRD and the EMFF). Evidence indicates that this integration has been inadequate in most Member States, despite the existence of many good individual examples of EU co-financed projects that support Natura 2000 site management.

Many businesses express concern about the wider costs of implementation, including administrative burdens, opportunity costs and costs of damage caused by certain protected species. Overall, evidence suggests that these costs, though significant, are small compared to overall business costs and revenues and to the benefits of implementation. Owners and managers of land in Natura 2000 areas express concern that the adequacy and coverage of compensation and incentive schemes is uneven across the EU.

There is little evidence that Member States have taken substantial additional steps to improve the ecological coherence of the Natura 2000 network by maintaining and, where appropriate, developing landscape features, as encouraged by Articles 3 and 10 of the Habitats Directive. This is probably, in part, because the implementation of Article 10 is at the discretion of Member States. However, as many habitats and species are not in Favourable Conservation Status it could be expected that at least some will require improvements in habitat connectivity to alleviate fragmentation pressures, and that Member States should, therefore, be taking some steps to implement these measures. Such actions would also contribute to the EU's Green Infrastructure Strategy, as part of Target 2 of the Biodiversity Strategy. Although some countries and regions have developed ecological networks, several of these precede the requirements under the Habitats Directive and have aims broader than those related to the coherence of the Natura 2000 network.

10.2.3 Protection of species

In addition to site-focused measures, the Nature Directives require the establishment of systems for protecting species, including within Natura 2000 sites. The Directives' provisions aim to ensure that activities such as hunting do not jeopardise conservation efforts and comply with the principles of wise use and ecologically balanced control of the species concerned. Although there have been legal challenges and numerous infringement cases, the species protection provisions and hunting measures are now generally appropriately transposed and implemented in all Member States, supported by a set of landmark CJEU rulings clarifying interpretation of the provisions. There has also been a sustainable hunting initiative, through which the Commission, nature authorities, nature conservation NGOs and hunting organisations have collaborated on guidance on sustainable hunting.

There is strong evidence of a considerable decline in illegal hunting, as well as reductions in the number of species that are hunted and adjustments in hunting periods, particularly during the spring migration and reproduction periods (when populations are most susceptible to hunting impacts). However, there is evidence to show that some illegal hunting and persecution (e.g. of migrant birds in the Mediterranean, birds of prey and large carnivores) persists. In addition, there continue to be some concerns about the application of the derogation procedures to certain species in some Member States, with some infringement procedures currently underway as a result. Knowledge of the impact of illegal and legal hunting on some bird populations is also uncertain, with much concern expressed that a significant proportion of bird species that can be hunted (i.e. listed on An-

nex II of the Birds Directive) have declining breeding populations (according to short and long-term trends).

Under the Habitats Directive, Member States are required to establish a system of strict protection for animal species (Article 12) and plants (Article 13) listed in Annex IV. While detailed information on the implementation of these measures is not widely available, it appears that the interpretation of the provisions in practice varies considerably among Member States. In general, the measures appear to be working well in most Member States, however, problems are reported in a few countries, primarily in relation to species that are relatively common in at least some parts of their range (such as the Great Crested Newt) and some species that are attracted to disturbed habitats, such as gravel workings, resulting in conflicts with industry. Protecting these species in these situations can create high costs and administrative burdens that are disproportionate to the species' conservation benefits.

Problems with Annex IV species are often exacerbated by inadequate information on their location, as this hinders impact assessments and prevents developers from early identification of potential conflicts. Problems may also be further exacerbated where the lack of knowledge about the distribution and status of a species and an absence of defined Favourable Conservation Status standards leads to overly risk-averse decision-making. In such situations authorities may focus on maintaining the status quo as much as possible, even though this may not be the best means of ensuring the Favourable Conservation Status of the population in question. However, there are growing numbers of good practice examples that avoid such situations and produce better and more efficient conservation outcomes.

Clearly, an adequate knowledge base and regular surveillance/monitoring is required to implement nature conservation activities effectively and efficiently. The Nature Directives therefore include specific provisions that require research and monitoring to be undertaken. These obligations and practical requirements have stimulated a substantial increase in research and monitoring activities in most Member States, from the initial knowledge required for designation of sites, to the later stages of monitoring habitats and species' conservation status. Some inventories of habitats and species in Member States have been financed with EU funds. Despite this, however, significant gaps in knowledge remain, leading to delays in designation, implementation problems and increased costs and burdens (see section 10.1).

The Favourable Conservation Status concept and production of detailed guidance by the ETC-BD on reporting under the Habitats Directive has worked well in terms of creating a consistent yet practical monitoring and reporting system followed by all Member States. Until recently, the implementation of the reporting provisions under the Directives was not based on a harmonised system and did not result in standardised information on the status of birds. However, this inconsistency has been largely rectified in the latest reporting cycle with reporting timetables aligned, enabling simultaneous assessment of progress under both Directives, as documented in the 2015 State of Nature Report.

10.3 Are the Directives fit for purpose?

This evaluation conducted a comprehensive assessment of whether the Directives have been effective in meeting their objectives, efficient in terms of the resources required, relevant in meeting the needs over time, coherent with other legislation and policy and whether they add value as EU instruments. Ultimately, the purpose of this exercise is to confidently explore the extent to which the Directives have been and remain fit to serve their purpose. This is a complex question, requiring the summing up of many different pieces of evidence and analytical conclusions on various aspects of the Directives.

Overall, the evaluation concludes that some important problems have impacted the Directives' effectiveness (e.g. their rate of progress and their biodiversity impacts to date)

and efficiency (e.g. in relation to the costs of some measures for some stakeholders, and the adequacy of funding to compensate for some costs). At the same time, the balance of evidence indicates that the Directives nevertheless remain fit for purpose. Some of the key points arising from the evidence and analysis that shed light on the extent to which the Directives are fit for purpose are presented below.

The need for nature conservation measures at the EU level remains valid, and the principles, aims and overall approach of the Directives continue to be appropriate to meet that need. The Nature Directives form a key part of the EU's environmental legislative framework, aiming to contribute to biodiversity conservation and to ensure that the impacts of economic and other activities are in line with EU objectives (e.g. Europe 2020 and sustainable growth, EU Biodiversity Strategy and EU international commitments). Nature conservation and the Directives themselves are relevant and important to EU citizens, as evidenced by the Eurobarometer surveys, as well as the large number of responses to the online public consultation. The need for EU level action in this area has been re-affirmed in several ways. Examples are the value of the coherent network of protected sites across the territory of the EU and the important interactions with EU sectoral policies in areas such as transport, energy and agriculture. While the identified needs and overall approach of the Directives remain appropriate, there have nevertheless been problems with implementation, as demonstrated both by the results achieved and the impacts on many stakeholder groups.

The Directives are making progress towards their aims but in many cases this has been slower or less than expected. The evaluation shows that problems with the pace and extent of progress towards the objectives of the Directives are not due to the design of the legislation (i.e. the nature of the operational objectives and the activities that Member States have carried out to fulfil requirements) but relate, rather, to problems with the implementation of the legislation. Many such problems can be linked to lack of availability of the necessary funding to fully implement the requirements of the Directives, or institutional capacity constraints (which are also often linked to administrative funding issues). For example, many knowledge gaps remain that hinder the development of the most effective and efficient approaches to management of Nature 2000 sites. Site management measures themselves are not always fully implemented, also often due to lack of funding.

It is also important to recognise that progress towards improving the status of most EU protected species and habitats needs to be considered in the context of the long-term decline in natural/semi-natural habitats and wider biodiversity before the Directives came into force, continued external pressures, the current stage of implementation of the legislation and the time needed for ecosystems and species populations to respond to conservation measures. When considered in these terms, the majority of evidence points to the Directives continuing to progress towards their aims and serve their purpose.

In economic terms the benefits of implementation are estimated to exceed costs according to the best, although imperfect, analysis available. There are examples of disproportionate costs and unnecessary burdens, although these can be reduced through more efficient implementation. While many businesses express concern about the costs and restrictions involved in implementation, there is little evidence to suggest that the Directives themselves create inefficient outcomes**.** Examples suggest that efficiency can be improved by more cost-effective implementation, especially at national and regional level.

The Directives represent a balanced and workable option for addressing the varying interests of stakeholder groups. The evidence here is strongly influenced by stakeholder origin. Those associated with nature protection goals (mainly environmental or nature protection authorities, civil society and some citizens) tended to state that the Directives present a reasonable approach to enabling socio-economic development insofar as it does not threaten conservation objectives of Natura 2000 sites or status of species, or in cases where suitable alternatives cannot be found and compensation measures

are put in place. However, economic operators directly involved in such activities (e.g. business, farmers, landowners) and authorities responsible for energy, transport, agriculture and other key sectors, sometimes claimed that the approach taken is too restrictive and may present undue burden on the pursuit of economic activities or sectoral policy objectives. Examples in implementation practice vary widely. Some suggest coherence, as in the case of project alternatives identified through well-designed Appropriate Assessment procedures. Others point to direct conflicts, such as projects with potentially avoidable negative impacts proceeding due to poorly conducted assessment procedures or political influence. Examples of authorities refusing to even consider permitting certain activities on Natura 2000 sites were also presented.

On balance, however, the evidence points to the conclusion that the Directives themselves are fair and ensure that socio-economic activities can be carried out in harmony with nature. There is also considerable evidence to conclude that problems, particularly with Appropriate Assessment, are decreasing over time as a result of experience and the development and sharing of good practice. Nevertheless there are many cases where greater attention needs to be paid to achieving this balanced approach. Dialogue, awareness, an open-minded approach, improved and more widespread incentives and compensation schemes, and greater efficiency in assessment procedures are all viable ways of achieving this. The evidence shows that such solutions are being developed over time, as lessons on how better co-operation and achieving win-win outcomes for all parties are being learned and shared.

In sum, the balance of the evidence demonstrates that the Directives are fit for purpose and the added value they provide at EU level is clear. The Directives have generated many important benefits for nature conservation and sustainable development overall, as detailed in this evaluation study report. The costs are not excessive, although they do impact some stakeholders more than others and can be disproportionately high in specific cases. The legislation remains relevant to most needs as they have evolved over time, and no major requests or suggestions for changing the legislation arose during the stakeholder consultations. One possible exception relates to the evidence suggesting that the Annexes of the Directives should be updated (to improve species coverage, align with international agreements' annexes or take account of changes in the conservation status). However, this would result in implementation delays and additional costs and burdens, and the balance of evidence suggests that updates at this stage would generate uncertainty and be counter-productive in both nature conservation and economic terms.

Despite the overall positive conclusion regarding the Directives' fitness for purpose, a number of significant challenges related to implementation have been identified. These impact not only the achievement of the objectives of the Directives, but also the costs and burdens placed on authorities and stakeholders, and the ability to achieve simultaneously the goals of other EU policies, especially in key economic sectors. The following section identifies some of the priority implementation issues to be addressed.

10.4 Implementation issues: areas for improvement

While it is not within the scope of this study to provide recommendations, one of the objectives of the evaluation was to assess opportunities for improvement and identify those practices that illustrate the benefits to be gained from more efficient implementation of the legislation. Many of the factors that hinder effective implementation arise as a result of the inefficiencies and ensuing costs of existing ways of working. Improving the efficiency of implementation processes will therefore save costs, reduce conflicts with other interests and facilitate more effective delivery of the Directives' objectives.

Areas for improving implementation have been highlighted throughout the study in the responses to the evaluation questions, and include (in no particular order):

- Adoption of **management plans**, setting of **national and regional Favourable Conservation Status criteria and effective approaches for the management of Natura 2000 sites** in Member States / regions for EU protected habitats and species. As well as being essential to meet the conservation objectives of the Directives, these measures also help to define the framework and evidence base for effective decision-making which guides decisions on plans and projects and resolves potential disputes and delays.
- The **availability of funding** for implementation of the Directives, including for administrative management, site conservation measures, and incentives which ensure that businesses and land managers are adequately rewarded and compensated for implementing the required measures. Better **integration of the objectives and requirements of the Nature Directives within key sectoral policies**, particularly with regard to competing incentives, such as payments that encourage practices that conflict with the management of habitats and species. Experience suggests that conflicts can be resolved where incentive structures are aligned with the objectives of the Directives, and where adequate compensation is available for any restrictions caused.
- The **coordination and streamlining of decision-making processes and assessment procedures** (e.g. SEA, EIA, AA and spatial planning) to harness efficiencies in data collection, analysis, public and stakeholder participation, and to allow for earlier and more effective identification of potential conflicts with planned developments. Duplication of these processes, and a failure to harmonise and synchronise the procedures required, have increased costs in several Member States.
- **Greater efforts to improve the coherence of ecological networks**, including through measures to enhance the connectivity of the Natura 2000 network within the wider landscape and through protection and enhancement of landscape features, thereby also contributing to the development of Green infrastructure.
- The need for continued, and in some cases stronger, **enforcement** action at EU and Member State level to correct improper application of the Directives and deter future breaches. This requires better information on implementation at EU level.
- The **need for more guidance and capacity** to understand, interpret and learn from good practice on all aspects of implementation of the Directives, particularly on the provisions ensuring the integration of socio-economic considerations, as well as better dissemination of existing guidance (e.g. through translation, tailoring from EU to national contexts, providing them with a stronger or mandatory nature etc.). Stakeholders across a range of sectors emphasise the importance of guidance and its role in facilitating cost-effective implementation.
- **Public awareness and understanding** of the Directives and their benefits and implications, to complement the importance attached by citizens to nature.
- **Better engagement and involvement of all types of stakeholders in the implementation of the Directives**, particularly in the development of management plans for Nature 2000 sites and the coordination of development activities to strengthen the plans and reduce implementation conflicts and administrative burdens. Early and effective engagement with businesses and communities affected by site and species conservation measures, as well as partnerships between businesses, NGOs and nature authorities, can help to promote shared understanding and reduce conflicts between conservation and development, reducing costs and administrative burdens.
- **Closing gaps in knowledge**, required for the identification of marine SPAs and SCIs, the potential impacts of certain human activities on some species and the location of EU protected species and habitats outside Natura 2000 sites. Knowledge gaps are a significant barrier to achieving conservation objectives.

They also create uncertainties which may hinder and delay development decisions, and impose costs on developers who are required to seek the necessary evidence.

- **Collection and sharing of biodiversity data, sharing of monitoring and implementation practices and results** among stakeholders and Member States, including experiences of implementation and sharing best practice. Strategic approaches to gathering, sharing and using information to inform planning and development decisions have been shown to reduce the costs and administrative burdens associated with implementation.

Progress in these areas will help to achieve the objectives of the Directives, thereby delivering their associated benefits, while reducing the costs of implementation. The evaluation has highlighted numerous examples of cost-effective implementation, demonstrating that, when implemented well, the Directives can provide an efficient framework for protecting nature, while furthering economic and social development at reasonable cost.

Annexes

Annex 1: Questions and judgement criteria linked to section

Questions and judgement criteria as approved by the Commission and reflected in the section introduction and approach of each question.

Question	Judgement Criteria
S.1 - What progress have Member States made over time towards achieving the objectives set out in the Directives and related policy documents? Is this progress in line with initial expectations? When will the main objectives be fully attained?	Bird populations are being increasingly maintained in accordance with Art 2. Habitats and species of Community interest are being increasingly maintained or restored to favourable conservation status in accordance with Article 2. Progress is being made against specific and operational objectives. The rate of progress towards the Directives' objectives is in line with expectations (to be deduced). The expected date of achievement of the Directive's objectives is in line with expectations (to be deduced).
S.2 - What is the contribution of the Directives towards ensuring biodiversity? In particular to what extent are they contributing to achieving the EU Biodiversity Strategy Objectives and Targets?	The contribution of the Directives towards biodiversity overall? (i.e. achievement of the EU's 2020 target and 2050 vision)? The contribution of the Directives towards Target 2: on maintaining and restoring ecosystem services. The contribution of the Directives towards Target 3: increasing the contribution of agriculture and forestry to biodiversity? The contribution of the Directives towards Target 4: ensuring the sustainable use of fish resources? The contribution of the Directives towards Target 5: combating invasive species?
S.3 - Which main factors (e.g. implementation by MS, action by stakeholders) have contributed to or stood in the way?	The main EU level factors that have contributed to or stood in the way. The main Member State level factors that have contributed to or stood in the way.
S.4 - Have the directives led to any other significant changes both positive and negative?	The environmental, social or economic effect was unintended or not foreseen. The effect led to positive impact enhancing the objectives of the Directive. The effect led to negative impacts for the achievement of the objectives of the Directive. The significance of the impacts in terms of the achievement of the overall objectives.
Y.1 - What are their costs and benefits (monetary and non-monetary)?	Type, nature, extent, significance and value of costs and benefits Type and number of stakeholders affected both positively and negatively.
Y.2 - Are availability and access to funding a constraint or support?	Evidence of funding needs to achieve objectives. Evidence of potentially available funding. Evidence of potentially available funding that is taken up.

Question	Judgement Criteria
	Evidence of funding availability affecting implementation and achievement of objectives. Evidence of funding availability affecting the efficiency of implementation.
Y3 - If there are significant cost differences between MS, what is causing them?	Levels of costs (investment, management, administrative and opportunity costs) in different Member States. Differences in unit costs (e.g. costs per hectare, cost per development proposal). Factors affecting cost differences (e.g. levels of implementation, number of cases, labour costs, time inputs, time delays etc).
Y.4 - Can any costs be identified (especially re compliance) that are out of proportion with the benefits achieved?	Estimates of value of costs exceeding those of benefits, for certain actions or places. Examples where the Directives require action with significant cost but little or no apparent benefit. Examples where the Directives give rise to very high costs but only moderate benefits. Examples may relate to particular requirements of the Directives, particular cases or specific sites. The question may require some degree of judgement from the analyst/ stakeholder as to whether costs are reasonable and proportionate to the benefits.
Y.5 - Can good practices, particularly in terms of cost-effective implementation, be identified?	Examination of alternative methods of implementation, and comparison of costs/ levels of effort required. Examples of objectives being met at low cost. Examples of successful initiatives introduced to reduce costs. Examples of transferable practices for cost-effective implementation.
Y.6 - What are likely to be the costs of non-implementation of legislation	Predicted impacts of non-implementation on habitats and species of Community interest, and on wider biodiversity and ecosystem services. Predicted impacts of non-implementation on the benefits of the Directives on ecosystem services. The nature and value of potential costs and benefits from these impacts.
Y.7 - Taking account of the objectives and benefits of the directives, is there evidence that they have caused unnecessary administrative burden?	Type, nature, extent and incidence of administrative burdens. Comparison of burdens with the benefits achieved. Necessity of these assessment of whether burdens in meeting them are necessary to meet Directives' objectives. Examples of avoidable or reducible burdens which might be avoided or reduced.
Y.8 - Is the knowledge base sufficient and available to allow for efficient implementation?	Knowledge requirements for effective and efficient delivery are identified. There are gaps in available knowledge compared to require-ments. Identified knowledge gaps constrain the efficient implementation of the Directives.
R.1 - Are the key problems facing species and habitats	Problems faced by habitats and species are of significant

Question	Judgement Criteria
addressed by the EU nature legislation?	incidence and/or magnitude. The Directives cover/address the key problems identified.
R.2 - Have the Directives been adapted to technical and scientific progress?	Have the Directives and annexes been updated to reflect that technical and scientific progress. Should the Directives and annexes have been further updated to achieve the objectives of the Directives.
R3. How relevant are the Directives to achieving sustainable development?	There is a clear consensus on the objectives for sustainable development. Achievement of the Directives' objectives contribute to sustainable development The Directives allow developments to take place that are not linked to biodiversity objectives provided they are sustainable.
R.4 - How relevant is EU nature legislation to EU citizens and what is their level of support for it?	EU citizens know of the Natura 2000 network. EU citizens have some knowledge of / take action to enforce the main features of the Habitats and Birds Directives (e.g. designation of protected areas, requirement for an impact assessment of relevant projects). EU citizens are in favour of establishing protected areas. EU citizens are in favour of infrastructure projects not being authorised because they have a negative impact on protected areas or species. EU citizens are in favour of finding alternatives to projects whose implementation would have a negative impact on protected areas or species. EU citizens agree that projects which have a negative impact on protected areas or species should nevertheless be authorised on economic grounds.
R.5 - What are citizens' expectations for the role of the EU in nature protection?	Level of EU citizens' satisfaction with EU action on nature protection. Level of EU citizens' support for the EU not acting on nature protection. Level of EU citizens' support for the EU only acting in support of Member State actions. Level of EU citizens' support for the EU taking a leading role in nature protection legislation. Preference of EU citizens for regulation vs. market approaches to nature protection in the EU.
C.1 - Are the objectives set up by the Directives coherent with each other?	The objectives are clearly defined by the legislation. There is consensus about the objectives. The degree of coherence internally and of the objectives between objectives of the Birds and Habitats Directives based on differences or similarities (in wording, structure or approach). The differences lead to significant conflicts or inconsistencies in implementation affecting the Directives' objectives.
C.2 - Are the Directives satisfactorily integrated and coherent with other EU environmental law eg EIA,	The extent to which EU Nature Directives are coherent and integrated with the EIA, SEA and ELD Directives. The extent to which national implementation of the Nature Directives is coherent with implementation of the EIA, SEA and

Question	Judgement Criteria
SEA?	ELD Directives.
C.3 - Is the scope for policy integration with other policy objectives (e.g. water, floods, marine, and climate change) fully exploited?	The extent to which the objectives of the Nature Directives have been integrated into, support, or are supported by, the objectives of other relevant EU environment policies. The extent to which the legal requirements of Directives and policy objectives are coherent. The extent to which the implementation of EU policy and Directives are coherent, including potential synergies and challenges
C.4 - Do the nature Directives complement or interact with other EU sectoral policies affecting land and water use at EU and Member State level (e.g. agriculture, regional and cohesion, energy, transport, research, etc.)?	The extent to which sectoral policies take into account EU nature objectives or other aspects of environment or sustainability in their own objectives. Sectoral policies have provisions allowing for consideration of nature/biodiversity impact (both stemming from legal requirements of the nature Directives and also their own policy objectives).
C.5 - How do these policies affect positively or negatively the implementation of the EU nature legislation?	Sectoral policies are implemented in practice in a way that is compatible with the objectives of the Nature Directives. The extent to which the requirements of the Nature Directives impact the implementation of the sectoral policies, if applicable
C.6- Do they support the EU internal market and the creation of a level playing field for economic operators?	The support or hindering of EU nature legislation for the EU internal market and level playing field: • in terms of the proportionality and necessity of requirements • in terms of whether the requirements discriminate against, or unfairly impact upon, particular operators in Member States
C.7 - Has the legal obligation of EU co-financing for Natura 2000 under Article 8 of the Habitats Directive been successfully integrated into the use of the main sectoral funds?	The integration of the legal obligation of EU co-financing into the use of the main sectoral funds. The extent to which required funds are secured through PAFs.
C.9 - How do the directives complement the other actions and targets of the biodiversity strategy to reach the EU biodiversity objectives?	The complementarity of actions and targets between the Nature Directives and the biodiversity strategy to reach EU biodiversity objectives.
C.10: How coherent are the directives with international and global commitments on nature and biodiversity?	Instances of coherence, incoherence and gaps between obligations arising from the relevant international agreements and the Directives. Implementation of the relevant international agreements through the application of the Directives.
AV.1, AV.2 - What has been the EU added value and what would be the likely situation in case of there having been no EU nature legislation?	The contribution of the EU nature legislation to the situation as it exists now compared to the situation before its adoption or that which would have existed with-out EU nature legislation.
AV. 3 - Do the issues addressed by the Directives continue to require action at EU level?	The extent to which action at EU level continues to be required to achieve the objectives and needs addressed by the Directives.

Annex 2: Summaries of National Missions, Focus Groups and Commission Meetings

Meetings of Focus Groups (EU level organisations) - March 2015

SUSTAINABLE USERS GROUP

PARTICIPATING ORGANISATIONS:

FACE
Swedish Association for Hunting and Wildlife Management
Hungarian Aquaculture Association
FEAP
Dansk Akvakultur
Europêche

SUMMARY OF ISSUES DISCUSSED

A wide range of issues relating to the operation and implementation of the Directives was discussed including:

- The benefits of the Directives for nature conservation and the importance of stakeholder engagement, especially in Natura 2000 areas and in particular where hunters have been involved in management, and the economic significance of hunting for biodiversity management.
- The relevance of hunting to the success of the Directives compared with other pressures.
- Variations and inconsistencies in implementation between Member States and how this effects costs for permitting activities.
- The significance of habitat conservation as opposed to species conservation.
- The scope for flexibility in implementation.
- The application in practice of the concept of Favourable Conservation Status and what it means at national level.
- The balance between conservation objectives and economic, social and cultural requirements.
- The role and efficacy of monitoring schemes.
- The usefulness and appropriateness of management plans.
- The need for some different approaches for marine conservation compared with terrestrial conservation and its impacts on the fishing industry, and how to engage effectively with the stakeholders concerned.
- The effects of permitting procedures and assessments on fish farming activity.
- The effects of N2000 site designations on property values.
- The scope of existing funding mechanisms and how well they operate in relation supporting sustainable use of natural resources.
- The scope of the Directives' Annexes and whether there is any need to review these.
- The role and operation of derogation procedures across the Member States.
- Interface between the Directives and other policies such as agriculture, aquaculture and renewable energy (hydropower), and the relevance of these to sustainable use initiatives.
- The role of guidance and how to ensure its correct application and accurate and consistent interpretation and application in practice across Member States.
- The Birds Directive has improved the management of hunting as an activity across the EU and reduced instances of illegal killing and trapping. Hunters are recognised as actors in conservation and the Directives provide a framework for recognition of their contribution.

- How the Guidelines on Fisheries management and Natura 2000 could be more widely promoted at regional/local level.
- Whether a platform (existing or new) to review implementation issues could help to reduce costs for stakeholders.

INFRASTRUCTURE DEVELOPMENT AND INDUSTRY

PARTICIPATING ORGANISATIONS:

European Association of Mining Industries, Metal Ores & Industrial Minerals (Euromines)
IMA-Europe – Industrial Minerals Association-Europe
CEMBureau, The European Cement Association
UEPG European Aggregates association
Renewables Grid Initiative
European Seaports organization (ESPO)
EURELECTRIC
INE- Inland waterways Europe
European Federation of Inland Ports (EFIP)

SUMMARY OF ISSUES DISCUSSED

The issues considered included:

- The importance of nature conservation and the overall objectives of the Birds and Habitats Directives.
- How the Directives can continue to support economic growth without being misused by opponents to local developments in hopes of preventing or delaying them.
- The role and value of Codes of Conduct and Commission guidance to find solutions to enable development whilst avoiding impacts on Natura 2000 sites.
- The treatment of strictly protected species, trans-boundary issues, information/knowledge availability on habitats and species in specific sites, and the need for proactive and streamlined approaches to large projects of overriding public interest.
- Legal interpretation of mitigation and compensation measures.
- The challenge of filling knowledge gaps in the marine environment.
- The nature and extent of administrative burden and its relationship to capacity and experience / knowledge within public authorities, as well as the role of guidance documents in facilitating while enabling development in certain sectors, where these are being consistently followed.
- The conservation and management of species that can benefit from economic activities and how to ensure that these activities are not penalised as a result.
- The role of guidance in promoting cost-effective compliance for developers and avoiding unnecessary legal or procedural delays.
- The challenges and costs of securing adequate survey information and data to support assessments.
- The value of the Nature Directives in promoting sustainable development, e.g. by encouraging industry and stakeholders to find solutions to avoid possible impacts on biodiversity.
- Scope for improving cross-border implementation of the Directives.
- The need for consistency and stability in requirements to allow developers to become familiar with the requirements and to develop trust in the system. Changes at this time could create a new period of uncertainty.
- The coherence of different protection systems at national and international level.
- Whether the Directives contribute to ensuring a 'level playing field' for developers and whether different economic sectors are treated consistently.
- The further development of guidance documents and the role of stakeholders.
- The relationship between nature legislation and the SEA Directive.
- The benefits from funding that promotes best practice, co-operation and sharing of practices

ENVIRONMENTAL NGOS

PARTICIPATING ORGANISATIONS:

Birdlife
ClientEarth
EEB
Eurosite
Friends of the Earth Europe
IUCN
Society for Ecological Restoration
Wetlands International
WWF

SUMMARY OF ISSUES DISCUSSED

- The beneficial impacts of both Directives on habitats and species throughout much of the EU, and the evidence for this.
- Progress achieved in relation to the impacts of hunting and what can be done to address any remaining illegal hunting practices.
- The challenges that exist in relation to biodiversity conservation issues on agricultural land.
- The benefits of the Directives for species not directly protected or listed in the Annexes through an 'umbrella effect' within protected sites.
- The challenges for the Directives in conserving habitats outside Natura sites
- The reasons for delays in transposition and implementation of the Directives.
- How well the measures are implemented and enforced by Member States, and the role of the Commission.
- Variations in practice in Member States in terms of setting objectives and coordinating approaches, as well as the establishment of best practice.
- How to assess the level of progress now as against what would be the position had the Directives not been introduced
- Cost difference of implementing Natura 2000 in different MS, and the factors which led to this variation.
- The quantification of costs and benefits in this particular policy area and how this could take account of the intrinsic benefits of the Directives as well as social benefits.
- Examples of cost effective implementation which enabled development while protecting species and habitats were discussed.
- Whether opening of the Directive would imply delays in implementation, uncertainty, or the need for interpretation of new articles.
- Whether or not it would be useful or timely to review the Annexes and what the risks would be of doing so and not doing so.
- How to improve connectivity of the Natura 2000 network.
- Coherence between the Habitats Directives and other environment legislation such as the Water Framework Directive.
- The role of the Commission in regarding enforcement.
- The importance of EU wide measures for migratory species

AGRICULTURE AND FORESTRY

PARTICIPATING ORGANISATIONS:

European Landowners Organisation (ELO)
Confederation of European Forest Owners (CEPF)
COPA COGECA
German Farmers' Union DBV
EUSTAFOR, European State Forest Association
IFOAM - International Federation of Organic Agriculture Movements
FECOF – European Federation of Municipal and Local Community Forest

SUMMARY OF ISSUES DISCUSSED

- Variation among Member States in implementation and the scope for discretion in applying the legislation, and the extent to which this complicates any objective assessment of effectiveness.
- The role and value of guidance documents provided they are available in all languages and are not too 'high-level', and how communication efforts could support good practice.
- The value of involving land owners and managers at all stages including site identification and biogeographic seminar; and the particular value of landowner engagement in the preparation of site management plans and setting of conservation objectives.
- The role of land purchase in the protection of Natura 2000 sites, and its effects on other land uses.
- Constraints resulting from the lack of readily available data on the presence of species and habitats in Natura 2000 sites, and strictly protected species elsewhere; and the costs of acquiring this data for assessment purposes.
- The influence of Natura 2000 designations on land prices. These may reflect real costs of management and opportunity costs, and its basis in perceptions about restriction of economic activity.
- Eligibility for EU funding to support land managers.
- How to achieve sustainable, multifunctional and efficient forest management to support the financing of management in forested Natura 2000 sites.
- The potential reasons for low uptake of the EAFRD Natura 2000 measure and the relationship to administrative burden and costs of applications.
- The influence of the EU enlargement process and the range of species given protection.
- The challenges of consistent and proportionate implementation at local level.
- The potential impacts of climate change on certain species and how this can be accommodated in the framework of the Directives.
- How potentially conflicting needs for different species can be accommodated at site level.
- The suitability of current agri-environmental measures.
- The extent of coherence with other environmental policies and measures and how they impact collectively on land based businesses.
- The relationship between forest management plans and N2000 management plans.
- The relationship between environmental protection objectives and energy/climate objectives and how to ensure consistent and compatible messages and incentives are given.
- Compatibility with measures under the Floods Directive.
- The need for, and focus of, new Communication actions.

Feedback meeting for Focus Group participants
End of Evidence Gathering phase - July 2016

PARTICIPATING ORGANISATIONS:

IUCN
WWF
CEPF
CEMBureau, The European Cement Association
EEB
Birdlife Europe
RSPB (UK)
EUSTAFOR
UEPG - European Aggregates association
NABU
Friends of the Earth Europe
European Seaports organization (ESPO)
FACE
EUROPARC
IMA-Europe – Industrial Minerals Association-Europe
European Anglers' Alliance

This meeting was held to provide an update on the Fitness Check since the last Focus Group meetings in March; to outline the Fitness Check Team's first impressions from the evidence gathered and consultations held during the period January-June; and to inform participants on the next steps.

The meeting clarified that it was intended to publish the responses to the evidence-gathering questionnaire by 17 July. Participants were asked to ensure that any commercially sensitive or otherwise confidential information was identified so that the published versions complied with any requirements concerning data protection as well as freedom of access to information. In relation to the public consultation, and the potential impact of campaign activities, the Commission clarified that it would accept all replies as valid and that in its analysis of the results it will take into account issues such as the influence of campaigns and any other relevant contextual information. The Commission clarified the origins of unsolicited responses to the evidence gathering questionnaire and confirmed that these would be taken into account in the analysis.

A vast amount of data and information had been gathered which needed to be analysed based on objective and systematic approach, to ensure the robustness of conclusions drawn.

Some of the issues that had arisen frequently were:

- Whether challenges and problems encountered were due to the Directives themselves or the way they are implemented.
- Some stakeholders suggest that the Directives or their implementation are not flexible enough to deal with certain challenges, while others consider that the Directives are not specific about certain requirements, which in turn leads to uncertainty about what is required and scope for challenge.
- There appears to be widespread agreement with the purpose and objectives of the Directives. The importance of protecting Europe's biodiversity is not challenged to any significant extent.
- The Natura 2000 site network is generally considered to be effective (or at least to have the potential to be so) but there is more divergence of views around the extent to which species protection measures are working.
- Insufficient financing is an issue that is widely raised by all categories of stakeholder but there are examples of very effective use of available funds.

- As expected, it is proving difficult to get good data on costs.
- Different approaches to implementation between Member States, but also within a Member State (local, regional level) can mean less predictability for some operators.
- The level of protection given to particular species, regardless of their abundance, is raised in responses and debated at meetings. Approaches to species management and to licensing and permitting are particularly diverse.
- There are perceived conflicts between nature conservation objectives and other land uses and the funding regimes that support them, especially where there is felt by those affected to be a lack of adequate compensation.
- There is a perception among some stakeholders that there is unequal treatment of different sectors affected by the legislation, particularly as regards permitting and associated requirements.
- Planning issues relating to protected sites have been widely raised, often tied to concerns about how precautionary an approach is needed.

The Commission informed participants about the next steps in the Fitness Check. The focus would now turn to assessing the evidence gathered and the results of the public consultation. For this purpose, a methodology had been developed by the consultants and this was presented to the meeting. The initial conclusions of this assessment would be presented at a conference in the autumn.

The Commission clarified that Fitness Checks normally result in Staff Working Documents, so this is most likely the final form the Commission's report will take. It is expected to be adopted in the second quarter of 2016. The consultants' report, which the Commission's report will draw on, is due in December.

Meetings with Commission Services on Fitness Check of the Nature Directives

Most Services have provided input through the Steering Group meetings, as the main opportunities provided for guiding the strategy, contributing to outputs and commenting on drafts. However, specific meetings were organised with some of the services most concerned with the implementation of the Directives or the integration of EU policies. For consistency and comparability of the information, the meetings were structured around a similar framework, the same as that used during the National Missions to Member States, and based on general questions about what works and what does not work, and why, as well as any evidence of the benefits, costs and administrative burdens. In addition, specific questions targeted to the relevant DG were added, based on the review of the questionnaires received from EU level organisations and from the stakeholders at a national level. All meetings were attended by representatives of DG ENV and the study consultants.

DG GROW: The meeting took place on 3 July 2015.

The main points of the discussion were collected in two separate questionnaires submitted to the consultants, which were uploaded as part of the evidence base for the study. One contribution was sent through one of the questionnaires.

DG AGRI: The meeting was held on 9 July 2015 and was structured in two parts, the first relating to forestry policy, and the second to the Common Agricultural Policy (CAP).

On Forestry: There is no EU Forest policy and, given Member States' competence, decisions on funding allocation remain very much at the Member State level. However, it is expected that the new Guidance document on forestry and Natura 2000– not yet publicly available – will have a positive impact. In addition, best practices are disseminated through the European network for rural development. They do not yet know how the funds have been used in the previous period, but support to forests was available through the Natura 2000 measure, forestry measures under Article 21 of EAFRD (EU Regulation 1305/2013) enabling investments for the protection of the environment or under Article 34 (Forest-environmental and climate services and forest conservation). In the new financing period, there is a rule that Member States must use 30% for environment and climate. In terms of financial support for forestry, the current trend is expected to continue, rather than changing significantly. EU Forest strategy embraces nature conservation objectives and Natura 2000, and has an ambitious target to ensure and demonstrate that all forests in the EU are managed according to sustainable forest management principles.by 2020. The main issues in terms of coherence between forestry policy and the Nature Directives are: Rural development is a menu, allowing Member States to choose the measures they wish to implement, leading to variable situations in different Member States,. The requirements from the Directives are often seen as an economic burden for which forest owners are not rewarded and site designation process without consultation has led to situations where forest owners often did not know that their forest was located in Natura 2000, however when there is consultation with owners, implementation is better.

On CAP: Funding is available to promote coherence between CAP and Natura 2000. 2007 to 2013 was the first period with a Natura 2000 compensation measure, but management plans for sites were largely not available, restricting the ability to use this measure. It is estimated that only 20% of conservation measures/management plans had

been prepared. France and Romania, for example, have used agri-environment measures to improve the management of protected areas. However, DG AGRI does not have data about the uptake of those measures. Natura 2000 and biodiversity are mentioned in all Regional Development Programmes (RDPs). Although DG Environment has systematically reviewed all the RDPs and checked their consistency, it is not clear whether the measures proposed and funds allocated to them would be sufficient for nature conservation objectives. In addition, some Member States have included Prioritised Action Frameworks (PAFs) to inform funding priorities in the RDPs. This system allows for flexibility. However, it is as yet too early to conclude anything for the new period (2014-2020). As regards the first pillar the 30% of direct payments are linked to the greening practices to improve the agricultural impact on the environment. Some limitations apply for the eligibility of land to direct payments.

DG REGIO: The meeting was held on 9 July 2015 with two representatives from DG REGIO, from the Major Projects Team and sustainable development.

The Directives have had an impact on the Regional funds' design in order to promote sustainable regional development and nature. The improved integration of nature protection into the reformed Cohesion policy for the 2014-2020 period is due in part to the existence of the Directives. There is a process to avoid negative impacts on the Nature Directives' objectives from major projects, and this has generally worked well. The Nature Directives have not been explicitly mentioned as a priority for horizontal requirements but biodiversity is included into Article 8 of Regulation 1303/2013 which requires horizontal integration of sustainable development and environmental protection into the programming documents and their implantation. In addition, both the EIA and SEA include the Nature Directives. Examples were presented of funding for projects being blocked due to the impacts on Natura 2000. At the same time the administrative capacity is very important – sometimes to avoid possible adverse impacts on nature very costly measures with unclear benefits to nature protection were taken without good consideration of all possible alternative solutions. There has been an evolution over time, and participants pointed to the communication to Member States that Cohesion/European Regional Development Funds would not be disbursed until the areas were designated. Now, sometime later, Member States need to provide information on the management plans adopted, otherwise they risk losing regional funding. Green infrastructure – Green corridors have been identified for funding in the operational programmes and are encouraged. Partnership agreements require description of how synergies between different EU funding programmes are achieved, including, for example, between LIFE and the Cohesion policy funds. Article 8 of the Habitats Directive is clear, and Regional funds support nature and biodiversity, however there are no data on the funding devoted to the implementation of the Nature Directives. The existing information/data shows that Regional Funds in the previous period 2008-2013 have provided funds for:

- Biodiversity and nature protection – EUR 2.6bn.
- Promotion of nature assets – EUR 1bn.
- Natural heritage – EUR 1.1bn.

DG MARE: The meeting took place on 15 July 2015 and involved DG MARE A.2 and A.3.

Issues raised at the meeting included: general recognition of the legal coherence and improvements in the new Common Fisheries Policy (CFP). The new CFP integrates elements of environmental legislation and procedures that help environmental protection in

fisheries measures, including an integrated and ecosystem approach to fisheries and links to environmental legislation through Article 11 of the new CFP. It is too early to judge how this Article is implemented, taking into account that the initiative lies with Member States under the regionalisation process. Assessing the integration levels between the Nature Directives and the CFP needs to take into account other measures, such as other systems of protection of marine areas, with which better integration might be possible (the CFP counts with a separate Article for this as well). The issues of integration between CFP and the Nature Directives relate to implementation, and, therefore, to national political choices. Site selection process is well advanced in certain Member States, although not in all. Similarly, the process for the adoption of management plans is not finalised in most Member States. The fisheries sector has, by nature, a better understanding of the need for restrictions for the conservation of stocks than in the measures required for habitat conservation: fisherman would recognize e.g. temporary closure of a site as contributing directly to stocks recovery, but would not always directly connect with particular site protection on a permanent basis, and could raising questions as to whether the evidence for the restrictions justifies significant limitation of fishing activities. Problems of implementation are frequently linked to lack of data and survey information. Stakeholders acknowledge that the implementation of the Directives in the marine environment has benefitted from the experience on land, notably in relation to the participatory process and collaboration between stakeholders. A participatory process ensures involvement of all stakeholders, but, while this is beneficial, there is a cost. There have been challenges in terms of ensuring that permitting of aquaculture activities conforms to requirements on species protection and site protection.

Summary of the missions to Member States

The objective of the missions to the 10 selected Member States was to examine in more detail key issues relating to implementing the Nature Directives. In advance of the mission written responses to the evidence questionnaire had been received and were used as starting point for the debate in each meeting, in which authorities/stakeholders were invited to discuss key issues on what has worked/ not worked and why, as well as on issues of costs, benefits, burdens etc. The meetings provided an opportunity for opening the consultation to involve additional stakeholders to share their views on the implementation of the Nature Directives. Further, the discussions allowed stakeholders who had previously submitted evidence gathering questionnaires to provide additional information or further clarifications. It was for the competent authorities in each country to arrange for participation in the stakeholders' sessions and to issue the invitations.

Summary of National Mission to Estonia held on 29-30 June 2015

Organisations participating in the meetings:

- Nature Protection Authority: Ministry of Environment;
- Regional authorities: Ministry of Agriculture
- Private sector: Port of Tallinn; Estonian Timber; Estonian Hunters Society
- NGOs: Estonian Environmental Law Centre ;Estonian Ornithological Society; Stockholm Environment Institute; Estonian Fund for Nature

Summary of meetings

The meetings with the public authorities, the NGOs and private sector were separate. Issues discussed included application of the nature legislation in Estonia, the use of EU funds, the role of the PAF in strategic use of rural and regional development funds, links between nature and economic development, their experience in managing large carnivores, dealing with issues of land use change, proportionality of monitoring in relation to common protected species. Also discussed were the importance and added value of the nature legislation, especially Natura 2000, incompleteness of the marine network, the Directives as a trigger for improving standards, knowledge and investment, some challenges in relation to appropriate assessments, forestry and nature outside Natura 2000 and communication with different stakeholder groups, the stable legal framework they provide, issues with small forest operators outside of Natura 2000, the Directives requirements for industry, (eg AA) and management of hunting.

Summary of the National Mission to France: 19-20 May 2015

Organisations participating in the meetings

- National land scientific authorities in charge of the implementation of the Directives: Ministry of Environment (MEDDE); MNHN; AAMP (Marine protected areas agency); ONCF (National office for hunting and fauna); DREAL; DDT, Premar (Atlantic maritime authority).
- Other authorities involved in the implementation of the Directives: MEDDE, MAAF (Ministry of Agriculture), CGET; DMPA; MINDEF; Associations of French regions: ARF); ANEM, ADF, AMF and ASP.
- Business and private interests: FNC; FNPF; MEDEF; CNPF; CNPEM; FNCOFOR; FPF; FNSEA, CNJA; FNPPR; ACRCI; APCA; FNHPA; FFMOTO; CSNPSN; CNC.
- Associations/NGOs: FNE, LPO, World Wide Fund for Nature (WWF).
- Bodies responsible for site management: RNF; ATEN; PFN; ONF; PNR; FCEN

Summary of the meetings

The visit to France was organised by the nature authorities, with discussions with each of the four types of stakeholder groups, including stakeholders that had not been invited to submit the evidence gathering questionnaire. Issues discussed included two initiatives being followed out by the French authorities: a study analysing the implementation of Natura 2000 to assess the progress made and to identify future implementation scenarios; and a new 'Biodiversity Law', currently under discussion, intended to streamline existing policies and create new implementation rules. Other issues covered included the French approach to consultation processes at a local level including the approach to site documentation (DOCOB) and the resources required; the experiences of various representative and stakeholder groups such as the National Committee of Fisheries and Fish Farming, forest owners (including public owners from national and regional level and private owners), landowners, sport associations, agriculture associations, hunters, chambers of commerce and representatives of industry. The impact of legal rulings from CJEU was discussed as was the role of the Green and Blue network initiative in avoiding habitat fragmentation.

Summary of the National Mission to Germany held on 20-21 April 2015

Organisations participating in the meetings:

- Nature Protection Authority and regional authorities: Federal Ministry for Food and Agriculture; Federal Ministry of Environment; Federal Ministry of Infrastructure; Federal Ministry of Defence; Ministry of Transport- waterways; Ministry of Transport – road and highways; Länder Representatives
- Private sector: BfN, BDI, SRU, Federation of German Landscape Architects
- NGOs: FoE Germany; Nabu; Birdlife Germany, World Wide Fund (WWF) Germany

Summary of the meetings:

The meetings were structured around three main topics: nature, land planning and land-use aspects, with all representatives of each group present throughout the meetings. Key issues discussed included the challenges of transposition and site selection; the setting of site conservation measures and preparation of management plans; the role of consultation with stakeholders on site selection and management; species protection measures; and monitoring and reporting requirements. Funding limitations were also discussed at some length as well as areas of continued legal uncertainty, the development of spatial planning measures, and sectoral guidance and best practice. Also considered were progress in addressing knowledge gaps and the operation of the derogation process in relation to certain species.

Summary of the National Mission to Malta held on 12-13 May 2015

Organisations participating in the meetings:

- Nature Protection Authority and regional authorities: MEPA – Malta Environment and Planning Authority; Ministry for Sustainable Development, Environment and Climate Change including Environmental Protection and Climate Change Directorate and Sustainable Development Directorate;
- Private sector: Federation of hunting organisations in Malta (FKNK); Institute of earth systems; Adi Associates; planning and environmental consultant.
- NGOs: BirdLife International and Nature Trust Malta

Summary of the meetings:

Separate meetings were held with the public authorities, NGOs and private sectors. Issues covered in these meetings included the significance of Birds Directive as a catalyst for change in hunter behaviour, the need for recognition of cultural dimension to hunting and trapping, use of innovative approaches to enforcement, dealing with pressure of land use and Natura 2000 areas, screening of development projects for Natura 2000, management planning and financing for Natura 2000, added value of the Directives for the marine protected areas, the challenges to a small administration in dealing with many Directives including on monitoring and reporting, the significant potential of eco-tourism and the role of the Directives in education and awareness in Malta.

Summary of the National Mission to the Netherlands held on 16-17 April 2015

Organisations participating in the meetings:

- Nature Protection Authority: Ministry of Economic Affairs
- Public organisations: Association of the Dutch Provinces (IPO); Ministry for Infrastructure and Environment (I&M) and 'Rijkswaterstaat'
- Private organisations : Dutch Farmers Organisation VNO-NCW, The Confederation of Netherlands Industry and Employers Associations of organisations on agri-environment; Dutch Landowners Organisation; FODI (association of mining companies); Port of Rotterdam; VisNed (Fishery organisation); Platform on Recreation and Nature; RECRON (confederation of recreation businesses)
- NGOs : Vogelbescherming (BirdLife Netherlands); Natuurmonumenten; Landschappen Nederland; Waddenvereniging; Staatsbosbeheer; Veldonderzoek Flora en Fauna (VOFF); WNF (World Wide Fund for Nature, Netherlands (WWF – Nederland))

Summary of the meetings:

The meetings were held with each group of stakeholders separately. Key issues discussed included the NEN (Dutch Ecological Network), the high number of court cases at national and EU level related to issues on the interpretation of the Directives' provisions (mainly Article 6(3) and (4)) and how to reduce administrative burden and costs The PAN initiative to deal with nitrogen pollution was discussed with all stakeholder groups. Also discussed were the role of flexible solutions to balance competing interests, such as codes of conduct or the

Summary of the National Mission to the Netherlands held on 16-17 April 2015

'temporary nature' initiative, the option for more binding instruments to protect the level playing field, the value of Commission guidance, differences between NEN and Natura 2000, the process required to ensure implementation of the conservation objectives, priorities for conservation objectives, the significance of costs and administrative burdens and the application of the Directives in the marine environment.

Summary of the National Mission to Poland held on 23-24 April 2015

Organisations participating in the meetings:

- Nature Protection Authority and Public organisations: Ministry of Environment, Directorate Forestry and Nature Protection Department; Ministry of Environment, Water management Department; Ministry of Environment, Directorate General for Environmental Protection (Nature Management Department, EIA Department, Department of Administrative Rulings); Ministry of Infrastructure, GDDKIA General Directorate for roads and motorways.
- NGOs/private sector: ClientEarth; OTOP; Klub Przyrodników; World Wide Fund for Nature (WWF); ELO

Summary of meetings

Issues discussed included completion of the Natura 2000 network and the challenges encountered, the adoption of conservation measures and the rate of progress, the approach to stakeholder participation, application of the Directives in the marine environment, and the effect of Commission enforcement and legal proceedings. There was also discussion on the role of EU funding, the role of NGOs, challenges of data acquisition and availability, capacity issues in administrative authorities, and the use of permitting. The spatial development plans were thought to represent a cost-effective tool for avoiding impacts and reducing administration costs. Further discussion were on the requirements for impact assessments, the role of the Common Agricultural Policy (CAP) and effects on farmland biodiversity, public participation in decision-making on projects affecting Natura 2000, the impacts of irrigation programmes, forest management plans and wolf conservation.

Summary of the National Mission to Slovakia held on 23-24 June 2015

Organisations participating in the meetings:

- Nature Protection Authority and other ministries: Ministry of Land Use and Rural Development of the Slovak Republic, Dept. of State Administration of Forestry and Hunting; Ministry of Transport, Construction and Regional Development of the Slovak Republic; Directorate of the Operational Programme for Transport; Ministry of Environment, Directorate for Nature Protection and Landscape Development; State Nature Conservancy of the Slovak Republic; Military Forests and Properties of the Slovak Republic;
- Private sector: Slovak Forestry Chamber; Slovak Association of Producers Stone Aggregates; Slovak Agriculture and Food Chamber; Slovak Angling Association; Slovak Hunting Chamber; Union of Regional Associations of regional non-forest owners of Slovakia
- NGOs: SOS/BirdLife Slovensko; BROZ; World Wide Fund for Nature (WWF) Danube Program; Raptor Protection of Slovakia.

Summary of the meetings:

The meetings were organised thematically, with all representatives of each group present each time. Issues discussed included the rate of progress with Natura 2000 site designations and the reasons why this had taken longer than expected, the role and value of consultations with landowners, the role of communication, and the role of the Directives in expanding the range of habitats protected in Slovakia. New SCIs are now subject to substantial consultations and impact assessments before designation as Natura 2000 sites and management Plans are being produced for all sites although this has been subject to some delays. Also discussed was the role of the Directives in encouraging information gathering and data collection, cross border collaboration, and promoting dialogue with development sectors such as transport and the extractive industries. Discussion also covered the current impacts of hydropower development, coherence with EIA requirements, enforcement, the sufficiency of funding, impacts of forestry; the likely impacts of the new CAP (and in particular greening of pillar 1; and the potential benefits for tourism.

Summary of the National Mission to Spain held on 5-6 May 2015

Organisations participating in the meetings:

- Nature Protection Authority including regional authorities: Ministry of Environment, Direction of Environmental Quality; Ministry of Environment, Direction of Forest and Regional Development; Ministry of Industry, Directorate of Tourism; Castilla, Directorate of Natural Environment, Unit on spaces protection ; Comunidad de Madrid, Directorate of Natural Environment; Xunta de Galicia, Directorate of Spatial Protection; Directorate of Biodiversity; Andalucia, Directorate of Biodiversity; Extremadura; Cantabria, Directorate for Nature Conservation and Protected Areas; Balear, Directorate on Species Protection; Murcia, Directorate of Environment, Research and scientific institute
- Private sector: Fishermen's association; College Association of Biologists; College Association Forestry Engineers; Young Farmers Association
- NGOs: APROCA, Landowners organisation; Hunters organisation; Friends of the Earth; SEO/BirdLife, Spanish Ornithological Society; Brown Bear Foundation; Biodiversidad Foundation; Ecologistas en Accion (Federation of Ecologists in Action); World Wide Fund for Nature (WWF) Spain

Summary of the meetings:

The meetings took place with each group separately. In particular this meeting provided valuable input from the Regional authorities who are responsible for adopting implementing legislation, for the adoption of management plans, and for species protection. The following issues were discussed: the adoption of conservation measures and management plans; the availability of financial and human resources, opposition by the public and by socio-economic sectors; and the need for a communication strategy to convey the value/benefits of protecting nature. There was considerable discussion of funding issues and requirements; the preparation of impact assessments for projects likely to affect Natura 2000 sites; the value of Commission enforcement and guidance; and steps taken to reduce administrative burden and simplify procedures. Also discussed were application in the marine environment, sustainable tourism, the role of stakeholder engagement notably with land managers and fishing interests, LIFE funding, examples of good practice Natura 2000 label of origin on products (SEO), impacts on economic interests and the application of the precautionary principle.

Summary of the National Mission to Sweden held on 8-9 June 2015

Organisations participating in the meetings:

- Nature Protection Authority including regional authorities: Swedish Environmental Protection Agency; Swedish Ministry for Environment and Climate; Swedish Forest Agency; Swedish Species Information Centre; Swedish Marine and Water Agency
- Private sector: Sveaskog, Forest company; Skogsindustrierna, Swedish forest industries; Svemin, Swedish mining industries; LRF, Swedish Farmers Association; Swedish Hunters Association; Svensk vindenergi, Swedish wind energy; Ekologigruppen (consultant firm); Calluna AB (consultant firm)
- NGOs: SNG, Swedish Society for Nature Conservation, SOF, Swedish Ornithological Society; World Wide Fund for Nature (WWF)

Summary of the meetings

The meetings were organised with each group separately. Discussion covered the Swedish approach to site designation and management, the procedures for the selection of SPAs and SACs, the designation of marine sites, and the preparation of site management plans including the role of stakeholders. There was discussion of a range of development cases and how these had been handled, on the recovery of species such as the Brown Bear, Wolf and Lynx, and the implications for other wildlife and hunting interests. There was also discussion about the proportionality of measures and the administrative burdens and opportunity costs associated with the Directives. Also discussed was a range of issues related to funding, including the role of agri-environmental funds which was seen as pivotal in ensuring progress. Both positive and negative effects of agricultural funding were raised.

Summary of the National Mission to the UK held on 1-2 June 2015

Organisations participating in the meetings:

- Nature authorities: Department for the Environment, Food and Rural Affairs; Scottish Government; Welsh Government; Natural England; Scottish Natural Heritage; Joint Nature Conservation Committee; Northern Ireland Government
- Other public authorities: Department of Energy & Climate Change; Department for Communities & Local Government; The Planning Inspectorate; The Environment Agency; Department for Transport; Department for Business Innovation & Skills; Department of Energy (Scotland); HM Treasury
- Private sector: ARUP; Country Land and Business Association; CIEEM; Energy UK; The Home

Summary of the National Mission to the UK held on 1-2 June 2015

Builders Federation; National Farmers Union; National Federation of Fisheries Organisations; Scottish Power; Seabed User & Developer Group; UK Environmental Law Association

- NGOs: Joint Links; RSPB; Scottish Environment Link; NI Environment Link; National Trust; WWF;Bat Conservation Trust; Friends of the Earth; Wildlife Trusts; John Muir Trust

Summary of the meetings

The meeting was arranged in four half-day sessions, one each for the private sector; environmental NGOs; the nature authorities; and other public authorities. Issues discussed included the challenges faced by businesses of different sizes (including SMEs) administrative burdens, cost-effective implementation and the role of information and guidance. Other issues discussed included whether there was evidence of unnecessary or disproportionate costs, evidence of benefits, and the experience of designing appropriate and effective funding and incentive schemes. Other subjects of debate included the need for a stable regulatory framework within which to operate, examples of costs and funding needs, the operation of the precautionary approach, the value of strategic planning and sharing of information for major infrastructure projects, and approaches to dealing with widespread species such as the Great Crested Newt.

Annex 3: Annex to Question S2

Section 1 - The number and proportion of threatened species directly protected by the Nature Directives

The number of species and sub-species in the Annexes is taken from the species checklists published by ETC-BD for Member State reporting on the 2007-2012 period under Article 17 or Article 12 (ETC/BD, 2014). The number of species that require Natura 2000 site designation are the species listed in Habitats Directive Annex II, or that are defined as 'SPA trigger species' in at least one Member State on the Birds Directive checklist (i.e. Birds Directive Annex 1 listed species plus migratory species with significant populations in the EU).

The number of species classed as threatened by the IUCN is taken from the published Red Lists referenced in the table and updated according to the online IUCN database (IUCN, 2015). According to the IUCN criteria, threatened species are classified as critically endangered (CR), endangered (EN) or vulnerable (VU). Non-threatened species can be classified as near-threatened (NT), least concern (LC) or data deficient (DD). The IUCN has not assessed sub-species other than for certain vascular plants, so 57 of the taxa listed in the Nature Directives annexes in the relevant species groups were not assessed.

	No of known species in EU	No of IUCN assessed species in EU	No of EU threatened species	No of species in Annexes	No of species with EU threat status not in Annexes	No of species with EU threat status in Annexes	No of species with EU threat status requiring Natura site designation	No of species in Annexes with unknown threat status	Reference
Birds	451 (EU 27)	451[762]	82	171 (plus 32 sub-species) (Annex I only)/ 247 (plus 37 sub-species)[763] (Annexes I & II)	20[764] (24%) (17 not trigger species)	40 (Annex I only) / 62 (Annexes I & II	65 (79%)	0 (0%)	(Birdlife International, 2015b)
Mammals	220 (EU	228[765]	31	139	4 (13%)	27 (87%)	17 (55%)	32[766] (2%)	(Temple and

[762] Includes three extinct/regionally extinct species.
[763] Excluding three species listed in Annex II but not native to the EU (*Branta canadensis*, *Meleagris gallopavo*, *Phasanius colchicus*).
[764] Includes 19 species that are listed in Annex IIA or IIB but not on Annex I. Does not include three species that are extinct in the EU.
[765] Excludes three species known to have become extinct between 1500 and 1950.
[766] Wild Goat *Capra aegagrus* and the *Ovis* subspecies have not been assessed by IUCN as their taxonomic status is disputed. *Spermophilus suslicus* has not been assessed at EU level. *Pipistrellus hanaki* was not assessed as it has only recently been recognised as a separate species. *Vormela peregusna* was not assessed as it is not in the EU 25 for which the IUCN assessment was carried out. 12 subspecies were not assessed. 17 species were assessed as data deficient.

	No of known species in EU	No of IUCN assessed species in EU	No of EU threatened species	No of species in Annexes	No of species with EU threat status not in Annexes	No of species with EU threat status in Annexes	No of species with EU threat status requiring Natura site designation	No of species in Annexes with unknown threat status	Reference
	25) / 260 (Europe)							(NB 20 n/a[767])	Terry, 2007)
Reptiles (non-marine)	141 (EU 27)	141	19	91[768] (plus 5 sub-species)	4[769] (21%)	15 (79%)	11 (58%)	3[770] (3%)	(Cox and Temple, 2009)
Amphibians	84 (EU 27)	84	18	63	8[771] (22%)	12[772] (55%)	9 (39%)	4[773] (3%)	(Temple and Cox, 2009)
Freshwater fish	381 (EU 27)	381	150[774]	176[775]	75 (50%)	75 (50%)	54 (36%)	26[776] (17%)	(Freyhof and Brooks, 2011)
Butterflies	451 (EU 27)	421	30[777]	31	19 (63%)	11 (37%)	7 (23%)	1[778] (3%)	(van Swaay et al, 2010)
Dragonflies	139 (with 4 subspecies)	134 (including	22	17	19 (86%)	3 (14%)	3 (14%)	0 (0%)	(Kalkman et al, 2010)

[767] 20 Annex species are assessed as not applicable by IUCN as they are of marginal occurrence in the EU, including 14 cetacean species, three seal species, *Rousettus aegyptiacus*, *Sciurus anomalus* and *Eptesicus bottae*.
[768] NB *Chamaeleo chamaeleon* is listed in annexes but is no longer considered to be native to the EU.
[769] This number differs from the published European Red List of Reptiles, because, since publication, the threatened reptile species *Dinarolacerta mosorensis* has been added to Annexes II and IV for Croatia.
[770] *Elaphe lineata* and *Emys trinacris* are classified as data deficient. *Mauremys caspica* has not been assessed by IUCN.
[771] The taxon status of *Rana pyrenaica* is recognised by the IUCN Red List but not by the Habitats Directive checklist.
[772] *Bombina pachypus* has only recently been separated from *Bombina variegata* and is recognised as being covered by the annexes, but is not yet listed as a separate taxon in the Habitats Directive checklist. *Calotriton arnoldi* is recognised as being covered by the annexes as part of *Euproctus (Calotriton) asper,* but is not yet listed as a separate taxon in the Habitats Directive checklist.
[773] Two recently recognised / still disputed taxa recognised on the Habitats Directive checklist have not been assessed by the IUCN - *Triturus macedonicus* and *Mertensiella luschani.* Two subspecies were not assessed.
[774] Does not include 10 freshwater fish species recognised as extinct in the EU.
[775] The number of freshwater fish species covered by the Habitats Directive annexes is subject to rapid change because the Directive covers a number of species groups subject to extensive taxonomic changes (eg *Coregonus, Alosa*, *Aphanius*, *Barbus*, *Cobitis taenia* hybrid complex*, Eudontomyzon, Gobio, Phoxinellus, Rutilus, Sabanejewia*). Six species of *Coregonus* are recognised as extinct in the EU.
[776] Six species were assessed as data deficient, six species were not assessed because they occur outside the EU, 10 species were not assessed because of taxonomic uncertainties or because they have only recently been described as separate species, three species were not assessed because they have only recently been added to the Habitats Directive checklist for Croatia, one subspecies was not assessed.
[777] Does not include two butterfly species regionally extinct in the EU before accession of Romania to the EU (*Aricia hyacinthus* and *Tomares nogelii*)
[778] *Polyommatus eroides* is no longer recognised by IUCN as a separate species but as a population of *Polyommatus eros*, which is not listed in the Directives.

	No of known species in EU	No of IUCN assessed species in EU	No of EU threatened species	No of species in Annexes	No of species with EU threat status not in Annexes	No of species with EU threat status in Annexes	No of species with EU threat status requiring Natura site designation	No of species in Annexes with unknown threat status	Reference
	(EU 27)	subspecies)							
Saproxylic beetles	unknown (perhaps 20-30 000 beetles in Europe)	407	57	19	38 (67%)	6 (11%)	6 (10%)	4[779] (21%)	(Nieto and Alexander, 2010)
Freshwater molluscs	670 (EU 27)	670	273	13	266 (97%)	7[780] (3%)	4 (1%)	2[781] (15%)	(Cuttelod et al, 2011)
Terrestrial molluscs	c 2700 (EU 27)	1138	235[782]	28	221 (94%)	14 (6%)	12 (5%)	4[783] (14%)	(Cuttelod et al, 2011)
Vascular plants	at least 12 000 (EU 27)	2170	not evaluated	640 (including 56 sub-species and 2 species groups)	Not evaluated	316[784]	293	139[785] (22%)	(Bilz et al, 2011), (Allen et al, 2014), Bilz 2015[786]

[779] Four taxa not recognised by the IUCN assessment.
[780] Including *Unio tumidiformis* classed as vulnerable by the IUCN Red List which is still considered to be part of *Unio crassus* under the Habitats Directive.
[781] Congeria kusceri is assessed as data deficient. *Margaritifera durrovensis* has only recently been recognised as a separate species in the Habitats Directive checklist and has not been assessed separately by IUCN.
[782] Excludes one species *Pseudocampylaea loweii* that was extinct before the accession of Portugal to the EU, and *Leiostyla lamellosa* also recognised as extinct but listed in the annexes.
[783] Three species are subject to taxonomic uncertainties and one subspecies were not assessed by IUCN.
[784] Excluding *Euphrasia mendoncae* classed by IUCN as extinct (although the taxon is disputed and recently it is regarded as a synonym of *Euphrasia minima*); and *Mandragora officinarum* classed as regionally extinct in the EU-27, although it is still present and endangered in Croatia and Bosnia-Herzegovina.
[785] 102 taxa are data deficient and 37 taxa have not been evaluated.
[786] Bilz,M. 2015 Unpublished list of Red List threat status of plants with conservation status and/or medicinal plants, Europe

Section 2 - Umbrella effect of the Natura 2000 network

Technical information

Studies of the coverage of species in the Natura 2000 network

Several studies have used gap analysis to assess whether or not the Natura 2000 network adequately covers species. This is a procedure for assessing the effectiveness of the protected area networks at ensuring that a viable collection and coverage of species and habitats is protected from disturbances (McKenna et al, 2014). Most gap analysis has assessed the representation (range and distribution) of species and habitats within the Natura 2000 network, as the lack of population data for most species precludes any analysis of impacts on persistence (abundance over time). Gap analysis has also been used to assess the coverage of the network for some species under different climate change scenarios (see question R.1 for further discussion).

Gap analyses that disregard the differences between species spatial structuring may lead to inequitable assessments of protected area coverage (Santini et al, 2014). The ability of different species to persist in protected area systems mostly depends on their population density and dispersal abilities, as well as the interaction between these two features, which eventually determines the number and relative size of the populations (Santini et al, 2014). Species with different spatial structures will, therefore, require the protection of different numbers of individuals in populations, with different probabilities of persistence across species, in order to achieve the same target.

A study commissioned by DG ENV (van der Sluis et al, 2016b) investigated the umbrella effect of the terrestrial Natura 2000 network. The species distributions were estimated by combining atlas distribution data with distribution of available habitat using land cover data at a 50km x 50km grid scale, then downscaling to 5km x 5km using environmental data and modelling techniques. More detailed analyses were carried out for certain groups in particular Member States for which detailed data are available. The study found that, across the EU, species are more likely to be distributed in Natura 2000 areas than would be expected by a completely random distribution, although in Cyprus, Malta, Sweden and Greece some species groups are relatively poorly covered[787]. This is not surprising as the network contains more semi-natural habitat and fewer developed areas than the rest of the EU. The study also found that:

- Butterfly species have a relatively high presence within Natura 2000, including threatened, non-threatened and not evaluated species, illustrating that most habitats for butterfly species are within the network.
- Vascular plant species that are identified as threatened on the EU or certain national Red Lists (and that are protected by international agreements, but excluding Annex II species) have more than 50% of their distribution within Natura 2000 sites compared to 42% outside the network.
- European orchid species on the EU Red List or certain national Red Lists (but excluding Annex II species) have 60% of their distribution within Natura 2000 sites compared to 40% outside the network. Birds that benefit most highly from Natura 2000 (showing consistently more than twice as great a relative % range in Natura 2000 as outside the network) are mainly associated with mountainous areas, wetlands and coastal habitats.
- Six bird species associated with farmland were found to be underrepresented in the Natura 2000 network, including Lapwing, Oystercatcher, Skylark, Common Quail and Corncrake. These species are not listed on Annex I but they are SPA trigger species in certain Member States, so some Natura 2000 sites are designated for these species.

[787] The study excluded Macaronesia and some species groups on Cyprus.

These findings are supported by the findings of earlier research which support the umbrella effect of the Natura 2000 network for common bird species, with the exception of farmland birds, and for butterflies, with other invertebrates poorly covered in some places.

Birds

- A study using data on 166 **common breeding bird species** from 13 Member States found that more than half of the common bird species are positively impacted by the Natura 2000 network, with higher populations inside than outside the network, and among these, a large number are specialist species, particularly woodland specialists (Pellissier et al, 2014).
- A study using breeding bird survey data on the Natura 2000 network in France concluded that the sites showed greater abundance of a majority of **common bird species** (Pellissier et al, 2013).
- In Italy, the national protected area network (including Natura 2000) fails to guarantee an acceptable level of protection for **farmland bird species**, while **birds breeding in open-habitat in mountains** have quite a good protection rate (Campedelli et al, 2010).

Other vertebrates

- A recent EU wide study of the representativeness of the Natura 2000 network plus national protected areas for **amphibians** and **reptiles** concluded that these areas often perform poorly in representing amphibians and reptiles, but that the Natura 2000 network usually covered significantly more species than a random selection of areas. However, well-covered species were mostly widespread taxa, while narrow-range species remained under-represented (Abellán and Sánchez-Fernández, 2015).

Invertebrates

- A comparison of data on 103 **butterfly populations** with the Natura 2000 network in six countries/regions showed that a larger number of species populations respond positively than negatively to the coverage of Natura 2000 in the landscape, but the data are insufficient to demonstrate any detectable differences between the temporal trends inside and outside Natura 2000 (Pellissier et al, 2014).
- There is a high degree of concordance between distributional hotspots of 120 endemic **water beetles** and Natura 2000 sites in the Iberian Peninsula and the Balearic Islands, although the distribution of four species falls completely outside the network (Sánchez-Fernández et al, 2008). The study also revealed that Natura 2000 sites in the region fail to protect beetle species typical of saline water bodies (saline streams and salt pans), despite their high conservation interest and narrow global distribution (Sánchez-Fernández et al, 2008).
- Only 7% of 150 **saproxylic beetles** in Italy have a significant portion of their geographical extent covered, with 13 species - including two threatened species - not protected at all by Natura 2000 (D'Amen et al, 2013). There was no evidence that Natura 2000 sites improved species representation compared to nationally designated areas.

Coverage of threatened species

Other studies that have assessed whether or not the Natura 2000 network adequately covers species that are considered to be threatened in the EU (i.e. those listed in IUCN assessments) reviewed by the EEA (McKenna et al, 2014) and identified by the consultants are detailed below.

- Two studies suggest that the Natura 2000 network provides significant coverage for a large proportion of the threatened vertebrates in Europe (Maiorano et al, 2015; Trochet and Schmeller, 2013). This is an expected result as 79% of threatened birds, 55% of threatened mammals, 58% of threatened reptiles, 39% of threatened amphibians, and 36% of threatened fish species require the designation of Natura 2000 sites in at least some parts of the EU (see the Table in section 1 of this Annex for details of calculations).
- A recent gap analysis of the Natura 2000 network plus national protected areas identified 5.6% of EU threatened terrestrial **mammals,** 0.9% of threatened **birds,** 11.9% of threatened **reptiles** and 17.6% of threatened **amphibians** as partial gap species (Maiorano et al, 2015). One critically endangered species in Austria, *Microtus bavaricus,* had no coverage. *Microtus bavaricus* was considered extinct at the time the Habitats Directive was drafted, and the residual population in Austria was discovered only recently.
- An earlier study, which overlaid the Natura 2000 site network with distribution maps of selected European threatened vertebrate species from the 2007 IUCN Red List, found that distributions of a large proportion of the threatened species of **mammals, birds** and **reptiles** were highly covered (above 90%) by the Natura 2000 network, but 36 threatened species were only 10% covered, including four **fish** species listed in the annexes (*Coregonus* species, *Barbus euboicus*, *Eudontomyzon hellenicus*, *Acipenser naccarii*), and two **amphibians** (*Speleomantes flavus*, *Rana latastei*) (Trochet and Schmeller, 2013). It is, however, likely that some of this assessment is now outdated as a result of additional Natura 2000 site designations, for example 190 sites have been subsequently designated for *Rana latastei* in Italy and Croatia and 54 sites for *Acipenser naccarii* in Italy.
- Natura 2000 sites in Slovenia cover the distribution of all but one **threatened butterfly** species, and cover the majority of areas with high butterfly diversity, with the small protected areas being of particular importance (Verovnik et al, 2011a).
- **Endangered arthropods and molluscs** are poorly covered by Natura 2000 in Spain (Hernández-Manrique et al, 2012). Coverage is highest on the Canary Islands.
- A study found that the protected area network (including Natura 2000) in Andalucía, Spain, is highly effective for **threatened vascular plants** (Mendoza-Fernández et al, 2010). The protected area network (including Natura 2000) in Great Britain (UK minus northern Ireland) covers occurrences of the vast majority of **threatened vascular plant species** (on the UK plant Red List), but 11% were missing from the network, notably, threatened arable weeds and species that occur at one or a few sites (Jackson et al, 2009). In Ireland an estimated 22% to 40% of tetrads (2km × 2km cells) with **plant species of conservation concern** do not overlap with designated areas (Natura 2000 and national designations) (Walsh et al, 2015).
- Plant micro-reserves (small areas of 5-20 ha) within Natura 2000 sites are effective for conserving populations of **rare and threatened plant species** in Spain (Valencia and Minorca), Slovenia (Karst Edge), Greece (Crete), and Cyprus (Kadis et al, 2013). This contrasts with a previous study that found poor effectiveness of Natura 2000 sites on Crete for plant biodiversity (Dimitrakopoulos et al, 2004).
- **Threatened lichens** typical of old growth forest in moist climate are well represented in the Spanish Natura 2000 network (Martínez et al, 2006) but four out of 18 lichens typical of dry habitats in a Mediterranean climate are poorly represented (Rubio-Salcedo et al, 2013).

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Species glossary

Common name	Latin name (IUCN)	Latin name (nature directives)
Birds		
Azores Bullfinch	*Pyrrhula murina*	*Pyrrhula murina*
Barn Swallow	*Hirundo rustica*	*Hirundo rustica*
Barnacle Goose	*Branta leucopsis*	*Branta leucopsis*
Black Grouse (British Isles)	*Lyrus tetrix*	*Lyrus tetrix*
Black Grouse (continental)	*Tetrao tetrix tetrix*	*Tetrao tetrix tetrix*
Bonelli's Eagle	*Aquila fasciatus*	*Aquila fasciatus*
Carrion Crow	*Corvus corone corone*	*Corvus corone corone*
Common Quail	*Coturnix coturnix*	*Coturnix coturnix*
Common Scoter	*Melanitta nigra nigra*	*Melanitta nigra nigra*
Corncrake	*Crex crex*	*Crex crex*
Curlew (Common)	*Numenius arquata arquata*	*Numenius arquata arquata*
Dalmatian Pelican	*Pelecanus crispus*	*Pelecanus crispus*
Dark-bellied Brent Goose	*Branta bernicla bernicla*	*Branta bernicla bernicla*
Eagle Owl (Eurasian)	*Bubo bubo*	*Bubo bubo*
Eleonora's Falcon	*Falco eleonorae*	*Falco eleonorae*
Fea's Petrel	*Pterodroma feae*	*Pterodroma feae*
Golden Eagle	*Aquila chrysaetos*	*Aquila chrysaetos*
Great Bustard	*Otis tarda*	*Otis tarda*
Great Cormorant	*Phalacrocorax carbo carbo*	*Phalacrocorax carbo carbo*
Great Cormorant	*Phalacrocorax carbo sinensis*	*Phalacrocorax carbo sinensis*
Great Grey Shrike	*Lanius excubitor excubitor*	*Lanius excubitor excubitor*
Grey Heron	*Ardea cinerea*	*Ardea cinerea*
Griffon Vulture (Eurasian)	*Gyps fulvus*	*Gyps fulvus*
Hen Harrier (Northern)	*Circus cyaneus*	*Circus cyaneus*
Imperial Eagle (Eastern)	*Aquila heliaca*	*Aquila heliaca*
Kingfisher (Eurasian)	*Alcedo atthis*	*Alcedo atthis*
Lapwing (Common)	*Vanellus vanellus*	*Vanellus vanellus*
Lesser Grey Shrike	*Lanius minor*	*Lanius minor*
Lesser Spotted Eagle	*Aquila pomarina*	*Aquila pomarina*
Lesser White-fronted Goose	*Anser erythropus*	*Anser erythropus*
Light-bellied Brent Goose	*Branta bernicla hrota*	*Branta bernicla hrota*
Long-tailed Duck	*Clangula hyemalis*	*Clangula hyemalis*
Montagu's Harrier	*Circus pygargus*	*Circus pygargus*
Nightjar (European)	*Caprimulgus europaeus*	*Caprimulgus europaeus*
Oystercatcher (Eurasian)	*Haematopus ostralegus*	*Haematopus ostralegus*
Purple Heron	*Ardea purpurea purpurea*	*Ardea purpurea purpurea*
Pygmy Cormorant	*Phalacrocorax pygmeus*	*Phalacrocorax pygmeus*
Red Kite	*Milvus milvus*	*Milvus milvus*
Red-throated Diver	*Gavia stellata*	*Gavia stellata*
Ruddy Duck	*Oxyura jamaicensis*	*n/a*
Saker Falcon	*Falco cherrug*	*Falco cherrug*
Siberian Jay	*Perisoreus infaustus*	*Perisoreus infaustus*
Skylark	*Alauda arvensis*	*Alauda arvensis*
Slender-billed Curlew	*Numenius tenuirostris*	*Numenius tenuirostris*
Spanish Imperial Eagle	*Aquila adalberti*	*Aquila adalberti*
Stonechat (European)	*Saxicola torquatus*	*Saxicola torquatus*
Turtle Dove	*Streptopelia turtur*	*Streptopelia turtur*
White Stork	*Ciconia ciconia ciconia*	*Ciconia ciconia ciconia*
White-backed Woodpecker	*Dendrocopos leucotos*	*Dendrocopos leucotos*

Common name	Latin name (IUCN)	Latin name (nature directives)
White-headed Duck	*Oxyura leucocephala*	*Oxyura leucocephala*
White-tailed Laurel-pigeon	*Columba junoniae*	*Columba junoniae*
White-tailed Sea-eagle	*Haliaeetus albicilla*	*Haliaeetus albicilla*
Zeno's Petrel	*Pterodroma madeira*	*Pterodroma madeira*
Mammals		
Arctic Fox	*Alopex lagopus*	*Alopex lagopus*
Badger	*Meles meles*	*n/a*
Beaver (European)	*Castor fiber*	*Castor fiber*
Bottlenose Dolphin	*Tursiops truncatus*	*Tursiops truncatus*
Brown Bear	*Ursus arctos*	*Ursus arctos*
Central European Tundra Vole	*Microtus oeconomus mehelyi*	*Microtus oeconomus mehelyi*
Common / European / Black-bellied Hamster	*Cricetus cricetus*	*Cricetus cricetus*
Common Pipistrelle	*Pipistrellus pipistrellus*	*Pipistrellus pipistrellus*
European Ground Squirrel / Souslik	*Spermophilus citellus*	*Spermophilus citellus*
Grey Seal	*Halichoerus grypus*	*Halichoerus grypus*
Grey Wolf	*Canis lupus*	*Canis lupus*
Hazel Dormouse	*Muscardinus avellanarius*	*Muscardinus avellanarius*
Iberian Lynx	*Lynx pardinus*	*Lynx pardinus*
Lesser Mouse-Eared Myotis bat	*Myotis blythii*	*Myotis blythii*
Lynx (Eurasian)	*Lynx lynx*	*Lynx lynx*
Muskrat	*Ondatra zibethicus*	*n/a*
Otter (European)	*Lutra lutra*	*Lutra lutra*
Rabbit	*Oryctolagus cuniculus*	*n/a*
Racoon Dog	*Nyctereutes procyonoides*	*n/a*
Siberian Flying Squirrel	*Pteromys volans*	*Pteromys volans*
Spanish Ibex	*Capra pyrenaica*	*Capra pyrenaica*
Spotted Souslik/ Speckled Ground Squirrel	*Spermophilus suslicus*	*Spermophilus suslicus*
Wolverine	*Gulo gulo*	*Gulo gulo*
Reptiles		
Common Wall Lizard	*Podarcis muralis*	*Podarcis muralis*
European Pond Turtle (European)	*Emys orbicularis*	*Emys orbicularis*
Loggerhead Sea Turtle	*Caretta caretta*	*Caretta caretta*
Maltese Wall Lizard	*Podarcis filfolensis*	*Podarcis filfolensis*
Sand Lizard	*Lacerta agilis*	*Lacerta agilis*
Schreiber's Green Lizard	*Lacerta schreiberi*	*Lacerta schreiberi*
Common Spadefoot Toad	*Pelobates fuscus*	*Pelobates fuscus*
Great Crested Newt / Northern Crested Newt	*Triturus cristatus*	*Triturus cristatus*
Moor Frog / Altai Brown Frog	*Rana arvalis*	*Rana arvalis*
Natterjack Toad	*Epidalea calamita*	*Bufo calamita (Epidalea calamita)*
Tree Frog (European)	*Hyla arborea*	*Hyla arborea*
Yellow-bellied Toad	*Bombina variegata*	*Bombina variegata*
Fish		
Allis Shad / Mayfish	*Alosa alosa*	*Alosa spp*
Atlantic Salmon	*Salmo salar*	*Salmo salar*
Atlantic Sturgeon	*Acipenser sturio*	*Acipenser sturio*
Baltic Sturgeon / American Atlantic Sturgeon	*Acipenser oxyrinchus*	*Acipenser spp.*
Lavaret	*Coregonus lavaretus*	*Coregonus spp*

Common name	**Latin name (IUCN)**	**Latin name (nature directives)**
River Lamprey	*Lampetra fluviatilis*	*Lampetra fluviatilis*
Scheldegroppe	*Cottus perifretum*	*Cottus gobio*
Sculpin / Bullhead	*Cottus gobio*	*Cottus gobio*
Sea Lamprey	*Petromyzon marinus*	*Petromyzon marinus*
Weatherfish (European)	*Misgurnus fossilis*	*Misgurnus fossilis*
Western Brook Lamprey	*Lampetra planeri*	*Lampetra planeri*
Arthropods		
(ground beetle)	*n/a*	*Carabus variolosus*
click beetle species	*Selatosomus melancholicus*	*n/a*
Great Yellow Bumblebee	*Bombus distinguendus*	*n/a*
ground beetle species	*Carabus clatratus*	*n/a*
Hermit Beetle	*Osmoderma eremita*	*Osmoderma eremita*
Jersey Tiger Moth	*n/a*	*Callimorpha quadripunctata*
Large Carder Bee	*Bombus muscorum*	*n/a*
Northern Colletes	*Colletes floralis*	*n/a*
Red Banded Sand Wasp	*Ammophila sabulosa*	*n/a*
Red Swamp Cray-fish / Louisiana Crayfish	*Procambarus clarkii*	*n/a*
Red-shanked Carder Bee	*Bombus rudarius*	*n/a*
Scarce Fritillary	*Euphydrias maturna*	*Hypodryas maturna*
White-clawed Crayfish	*n/a*	*Austropotamobius pallipes*
Yellow-spotted Whiteface	*Leucorrhinia pectoralis*	*Leucorrhinia pectoralis*
Molluscs		
Desmoulin's Whorl Snail	*Vertigo moulinsiana*	*Vertigo moulinsiana*
Edible Cockle	*Cerastoderma edule*	*n/a*
Freshwater Pearl Mussel	*Margaritifera margaritifera*	*Margaritifera margaritifera*
Horse Mussel	*Modiolus modiolus*	*n/a*
King Scallop	*Pecten maximus*	*n/a*
Strawberry Snail	*Trochulus striolatus*	*Discus defloratus*
Thick Shelled River Mussel	*Unio crassus*	*Unio crassus*
Thick Shelled River Mussel	*Unio tumidiformis*	*Unio crassus*
Plants		
Beech	*Fagus sylvatica*	*n/a*
Dwarf Gentian / Boehmischer Enzian	*Gentianella bohemica*	*Gentianella bohemica*
Neptune Grass / Mediterranean Tapeweed	*Posidonia oceanica*	*n/a*