METHODOLOGY FOR BIRD SPECIES RECOVERY PLANNING IN THE EUROPEAN UNION

Final Report

Contract ENV.B.2./SER/2009/0076r
Scientific and technical assistance supporting the implementation of the Birds Directive

Prepared by: BirdLife International
Sub-contractor: FACE

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Executive Summary

- The European Commission has nearly 20 years of experience in developing and implementing bird species recovery plans. Some of this experience has led to the best known conservation success stories in the EU. However, successful achievement of the EU 2020 Biodiversity Strategy requires further strengthening of species recovery efforts, as some of the key targets will depend on that.

- The current report was prepared by BirdLife International for the European Commission under service Contract ENV.B.2./SER/2009/0076r "Scientific and technical assistance supporting the implementation of the Birds Directive". The objective of this contract is **to elaborate a new process of producing, approval, monitoring and updating documents supporting the implementation of the Birds Directive (methodology).** These documents are:
    - *Species Action Plans* for threatened birds listed in Annex I of the Birds Directive;
    - *Species Management Plans* for huntable birds considered to be in unfavourable conservation status, listed Annex II of the Birds Directive;
    - *Key Concepts* of Article 7(4) of Directive 79/409/EEC.
- The contract was implemented by BirdLife International, with the Federation of Associations of Hunting and Conservation in the EU (FACE) as sub-contractor.

- For the purpose of this contract, the following tasks were undertaken by the contractors:
    - Taking stock of the experience with species recovery planning in the EU and analysis of the strengths, weaknesses and opportunities for improvement (e.g. coordinated prioritisation, development, review and implementation);
    - Proposing an objective method to draw up, approve and regularly revise the list of species in need of EU action plans (Annex III)
    - Elaboration of methods to produce plans, monitor and facilitate their implementation and update (Part 3)
    - Drawing up a list of species for which plans or population status assessments should be produced (Section 3.2 and Annex III).
    - Preparation of species status reports for four species (Annex IV) and lessons learned from this exercise were incorporated into the proposed method.
    - Organisation of an international conference on bird species recovery (Brussels, 23-24 November 2010) and production of conference report (Annex VI).
    - Analyse strengths, weaknesses and identify opportunities for improving the Key Concepts document and propose a methodology for updating and reviewing the information it contains (Annex VIII).

- Issues investigated
    - Aims of species recovery in international legislation and the EU Biodiversity policy.
    - Target audience, users and stakeholders to be considered in recovery plans.
    - Process and procedures of development, approval, review and revision of plans: strengths and weaknesses of the current approach, opportunities for improvement.

- Member State experience with species recovery plans at national and international levels. Experience with the implementation of such plans at local level.
- Methods for objective selection of species based on prioritisation. Suggested priorities for action plan development, review and LIFE funding.
- Assessment of four species with insufficient knowledge of their conservation status by collating and analysing the latest available data from scientific, conservation and resources use stakeholders and investigating the issues involved with the conservation of the species.
- In relation to the Key Concepts document, examination of the criteria used for identifying the pre-nuptial and reproductive period, and review of some recent research on this subject.

- As the content and methodology of Species Action Plans and Management Plans are very similar a proposal is made to merge them into a single type – Species Recovery Plan, although it should be clear that depending on the species some differences will remain. Proposals are made as to how to adapt the internationally recognised format of the AEWA Single Species Action Plan format to serve this purpose for the EU.

- Part 1 of the report presents the policy basis and aims for bird species recovery in the EU. It summarizes the key obligations for the EU Member States arising from international legislation as well as recent decisions under the Convention on Biodiversity (CBD)

- Part 2 deals with the results of an assessment of the current experience with international species recovery plans in the EU. In order to examine in detail certain issues some examples of national species plans are given. Information for this assessment was collected through literature review, discussion with relevant experts and practitioners and a survey among the member states, which can be found in Annex II of the report.

- Part 3 presents proposals for improvement of the species recovery planning process following the life-cycle of the recovery plans.

- Part 4 summarises the conclusions from the assessment and the most important recommendations for the future of species recovery in the EU. They are:
  - Species prioritization criteria should be explicit and linked to threat status (Red list); prioritization exercises should be run periodically, in conjunction to conservation status assessments (e.g. every five-six years).
  - International coordination and synergies between relevant organisations should be maximized (e.g. European Coordination Group for Bird Species Conservation Planning).
  - The planning process should be organised in order to accommodate the necessary activities for stakeholder involvement and institutional coordination.
  - Recovery teams with broader competences should be convened to carry out the full spectrum of tasks envisaged in the planning process.
  - The planning cycle should be rationalized to provide clear options for monitoring, update and reporting.
  - The implementation arrangements should be developed and better organized, for example trough a Coordination centre for all plans, a Plan coordinator for each plan, national focal points and regular reporting and feedback.
  - The Commission and Member States should strive to facilitate better use of resources and access to funding for implementation of the plans by repackaging and communicating the plans into policy and budget relevant packages, targeted to the sectors that can ensure implementation.

Part of these proposals were discussed with member states and stakeholders during the Conference on bird species recovery (Brussels, 23-24 November 2010) and on subsequent meetings in the frame of this contract (e.g. the Ornis Committee). Other recommendations are made based on the experience of the contractor and sub-contractor. The most important source for recommendations was a survey among 15 Member States with experience in bird conservation planning. Direct communication with key organisations involved in species recovery actions such as the European Commission DG Environment, AEWA|CMS, the Bern Convention, specialist NGOs and individual experts was maintained throughout the contract.

The compilers of this report would like to extend their sincere gratitude to the European Commission, DG Environment staff involved managing this contract for their extraordinary commitment to the subject, their guidance and rigorous quality control.

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Introduction

Species extinction is among the most obvious dimensions of biodiversity loss. The extinction of species is irreversible; the rates of species extinction at present are estimated to be "100 to 1000 times the background or average extinction rates in the evolutionary time scale of the planet" (Lawton and May 2002) and for these reasons, preventing extinction traditionally has been in the core of conservation practice and is codified in a wide range of legislation. However, just preventing species to become extinct is a minimalistic aim which does not correspond to levels of ambition defined in modern international biodiversity conservation policy. Today conservation deals with problems of population and ecosystem resilience, ecological services provided by healthy ecosystems and restoration of degraded ecological processes and systems. Thus focusing on preventing species extinctions only is already a too narrow aim and instead it should serve as a basis on which to add ensuing layers of ambition. Modern approaches to species conservation are based on a long term view that threatened species or species that have been historically depleted would require continuous management to recover to a self-sustaining and ecologically resilient state (Scott *et al.* 2005, Scott *et al.* 2010).

Therefore species *recovery* is a more comprehensive aim which includes a continuum of scenarios, from simply achieving the minimum conditions for species persistence to full recovery of a species' ecological and evolutionary functionality within its ecosystem. This broader aim can be broken down into a set of measurable targets. Thus according to Redford *et al.* (2011) successfully conserved species will: (a) be self-sustaining demographically and ecologically, (b) be genetically robust, (c) have healthy populations, (d) have representative populations distributed across the historical range in ecologically representative settings, (e) have replicate populations within each ecological setting, and (f) be resilient across the range.

If such broader approach is taken by the EU it will help achieve important synergies within the broader biodiversity policy framework and coherence between the explicit species and habitat targets laid by the EU Nature directives and the wider goals of the EU 2020 Biodiversity Strategy. Part 1 of this document presents a review of the policy targets relevant to conservation of birds in the EU and which set the scene for a comprehensive species recovery strategy (methodology).

Part 1 - Aims of Bird Species Recovery

1.1 The Convention of Biological Diversity

The Convention of Biological Diversity (CBD) includes species recovery among the requirements to the Parties (Table 1). Article 8 specifies the following objectives:

(d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;

(f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies;

The CBD's revised strategic plan adopted in Nagoya in 2010, Strategic Goal C lists species among the three key elements requiring action: *to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity*. Thus under the new plan the parties to CBD have committed to targeted efforts to recover species of conservation concern. Specific goals include taking measures to ensure that the conservation status of known threatened species "*has been improved and sustained*" (Target 12 of the plan) (CBD 2010).

1.2 Species recovery in the EU 2020 Biodiversity Strategy

The EU 2020 Biodiversity strategy includes six mutually supportive and inter-dependent targets that respond to the objectives of the 2020 headline target. Species recovery aims follow from Target 1.

Target 1
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.

Given the breath of threats and pressures facing bird species, their recovery needs also be supported and will benefit from actions under most of the remaining five strategy targets, reflecting the complex nature of species declines and their conservation. Of these, Target 3A (on Agriculture), 3B (on Forests) and 4 (on Fisheries) are particularly important for a big number of threatened bird

species in the EU due to their dependence on the favourable management of semi-natural agricultural habitats, forests and fisheries. Actions in support of Target 5 (on Invasive alien species) are particularly pertinent to threatened birds with small and isolated (e.g. island) populations, as well as such with low reproductive potential (e.g. sea birds). Due to the fact that only a few threatened species are entirely confined to the EU, and that many of the species are migratory, actions under Target 6 (on EU contribution to averting global biodiversity loss) are also very important.

Specifically, in the context of the 2020 Biodiversity strategy the aim of species recovery recalls "*the full implementation of the Birds and Habitats Directives (i.e. reaching favourable conservation status of all habitats and species of European importance and adequate populations of naturally occurring wild bird species)*" (EC 2011a).

1.3 Species recovery aims in the Birds Directive

The Directive 2009/147/EC of the European Parliament and of the Council (Birds Directive) was adopted in 1979 in response to the growing concern among European citizens to the decline of bird populations following from pollution, loss of habitats as well as unsustainable use. It was also in recognition that wild birds, many of which are migratory, are a shared heritage of the Member States and that their effective conservation required international co-operation (EC 2011b).

The following texts of the Birds Directive are relevant to species recovery and recovery plans:

Recital (6) of the Directive stipulates that the stringency of conservation measures to be taken in response to various factors (i.e. pressures caused by human activities) should be *"adapted to the particular situation of the various species within the framework of a conservation policy".*

Article 2 requests Member States to take "*the population of the species referred to in Article 1 at a level which corresponds in particular to ecological, scientific and cultural requirements".* The nature of these measures is specified further in the texts of the Directive. They include a general protection regime for all species of naturally occurring bird species, but a special emphasis is put on the *protection of habitats for endangered* as well as *migratory species* (listed in Annex I), especially through the establishment of a coherent network of Special Protection Areas (SPAs).

Further, Article 4 specifies that conservation of bird species requires taking of *special conservation measures concerning their habitat* which is a reference to the ecosystem approach in conservation (see section 4.2). This article puts *species in danger of extinction* at a prominent first place among the criteria defining for which species such measures should be taken. It further clarifies that the *"trends and variations in population levels shall be taken into account as a background for evaluations".*

Consequently, based on the relevant texts of the Birds Directive, bird species recovery in the EU requires a system that delivers:

- A pro-active approach to the conservation of bird species that stimulates Member States to undertake effective conservation measures.
- A comprehensive approach to bird conservation benefiting all species of wild birds occurring naturally in the EU and their habitats, not only the threatened species.

- A method of prioritisation that is capable in identifying threatened species requiring more focused and intense conservation management, particularly in relation to their habitat, from more widespread (common) species whose populations need to be maintained at favourable levels.
- The system of prioritisation used to target recovery efforts should not leave out species that are not (yet) threatened but which status is below optimal. On the contrary, in order to achieve both goals, the system should allow for maximising of efficiencies that would bring benefits across species, communities and ecosystems. One way to achieve this could be by introduction of broader (group) multi-species programmes and plans according to carefully selected criteria of commonality. Such a system would complement the single species management approach (fine filter) with a more ecosystem-based management approach (coarse filter)[1] (*sensu* Hunter 1991).

1.4 Other International commitments of the EU and Member States related to conservation of wild birds

The EU 2020 Biodiversity Strategy states that the EU will also support on-going efforts to improve collaboration, synergies and the establishment of common priorities between the biodiversity related Conventions (CBD, CITES, Convention on Migratory Species, Ramsar Convention on Wetlands and the World Heritage Convention). The directly relevant conventions to which the European Union is a party are listed in Table 1.

In response to these international commitments, sophisticated species recovery policies and laws have already been established in many countries, some of the most advanced being those of the United States (*Endangered Species Act*[2]*, 1973*), Australia (*Environment Protection and Biodiversity Conservation Act, 1999)*, Canada (*Species At Risk Act, 2002*), but also EU Member States (e.g. France, Italy, Spain, United Kingdom).

The implementation of international species conservation policies in Europe has nearly 40 year history and significant experience has been gained by the relevant actors. This experience, and

[1] "*Coarse filter*" is a metaphor to express the idea that by conserving the ecological communities of a given region will benefit the majority of species. The coarse filter approach refers to the management of landscapes through a network of protected areas, and management practices in the surrounding matrix that attempt to emulate and conserve natural ecological processes. "*Fine filter*" is a metaphor to express the idea that some species, ecosystems and features need to be conserved through individual, often localized efforts (i.e. fine filter approach) because they fall through the mesh of the coarse filter.

[2] The US Endangered Species Act requires that: *For all species listed as Endangered a recovery plan with site-specific management actions necessary to achieve the restoration goal should be developed. Each plan should contain objective, measurable criteria for meeting that goal, and estimates of the time and cost required to carry out the necessary conservation measures.*

particularly the perspective of Member States, is a subject of review in Part 2 of this document. Here we only extract and summarise the relevant commitments as they are spelled out in the relevant texts and motions of the Conventions.

Table 1 List of the International Conventions most relevant to bird conservation: title, date of entrance into force and relevant objectives

Convention on Biological Diversity (**CBD**), UN Rio de Janeiro, 5.6.1992 To conserve the 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, taking into account all rights over those resources and to technologies, and by appropriate funding. The CBD requires the *"the maintenance and recovery of viable populations of species in their natural surroundings*". Article 6 of CBD introduces the tools for biodiversity conservation that the Parties could develop, namely "*national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes*". The preparation of Biodiversity Action Plans (BAP) and Species Action Plans in particular (SAP) are some of the examples thereof. Strategic Goal C of the CBD Action Plan adopted in Nagoya lists species among the three key elements requiring action: *to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity*. Thus under the new plan the parties to CBD have committed to targeted efforts to recover species of conservation concern.
Convention on the Conservation of European Wildlife and Natural Habitats (**Berne Convention**), Council of Europe Berne, 19.09.1979 The goal of the Convention is to conserve wild flora and fauna and their natural habitats, especially those species and habitats whose conservation requires the cooperation of several States, and to promote such co-operation. Recalling article 1, paragraph 2 of the Convention which requires Parties to give particular emphasis to the conservation of endangered and vulnerable species, the Standing Committee has adopted six Recommendations by which it has endorsed 59 action plans for 56 threatened bird species and sub-species (see Annex I for full list) and four Recommendations calling for their specific implementation.
Convention on the Conservation of Migratory Species of Wild Animals (**CMS**), UNEP Bonn, 23.6.1979 To conserve migratory species and take action to this end, paying special attention to migratory species the conservation status of which is unfavourable, and taking individually or in co-operation appropriate and necessary steps to conserve such species and their habitat. The CMS Article 1(c) introduced the concept of favourable conservation status for migratory

animals, which has been later adopted and developed by the EU Habitats Directive (43/92/EEC):

"'*Conservation status' [of migratory species] will be taken as 'favourable' when: (1) population dynamics data indicate that the historical levels migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems; ... and (4) the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management*."

A list of endangered migratory species is established in Appendix I of the Convention, while Appendix II lists migratory species which have an unfavourable conservation status and which require international agreements for their conservation and management, as well as those migratory species which have a conservation status which would significantly benefit from the international co-operation that could be achieved by such an international agreement (e.g. AEWA). Action plans for individual species or for groups of migratory species can be developed under these agreements.

Specific agreements have been concluded for the following species or populations for which the EU forms part of the range: The Middle European Population of the Great Bustard *Otis tarda*, Aquatic Warbler *Acrocephalus paludicola*, Slender-billed Curlew *Numenius tenuirostris*. A single species action plan has been developed and adopted under each of these species agreements.

Outside of the framework of specific Agreements the CMS has initiated the development of few bird species action plans, but several of the European SAPs for migratory birds have been consequently endorsed by the CMS.

The 2011 COP10 of the CMS has adopted a number of resolutions calling for the implementation of bird conservation strategies at supra-species level, which take a synergistic approach by focusing on priority common issues to a number of species (regularly identified in individual species action plans as priority) and provide a useful platform on which EU and Member State actions can be developed. Examples include Resolution UNEP/CMS/Res.10.27 Improving the Conservation Status of Migratory Land birds in the African Eurasian Region; Resolution UNEP/CMS/Res.10.26 Minimizing the Risk of Poisoning to Migratory Birds; Resolution UNEP/CMS/Res.10.11 Power Lines and Migratory Birds.

Agreement on the conservation of African-Eurasian Migratory Water birds (**AEWA**), UNEP

The Hague,15/06/1995

To take the necessary actions to conserve migratory species paying special attention to migratory species the conservation status of which is unfavourable. The species focus of the Agreement are water birds (172 initially, 255 since MOP 4) that are ecologically dependent on wetlands in Africa and Eurasia, including the Middle-East, Greenland and parts of Canada.

The development and implementation of International Single Species Action Plans (ISSAPs) is one of the flagship approaches for the conservation of migratory water birds under the Agreement. As specified in paragraph 2.2 of the AEWA Action Plan, Parties shall cooperate with a view to developing and implementing ISSAPs; the Agreement Secretariat shall coordinate the

development, harmonization and implementation of such plans. A specific contribution of AEWA is the promotion of the flyway[3] approach to species conservation, which means that the International Single Species Action Plans developed by the Agreement have wider geographical and political scope requiring higher level of coordination among the actors. In recognition of this necessity the Agreement has promoted the establishment of institutionalised Species Working Groups bringing together government, non-government and scientific representatives from the range states. A permanent Coordinator post provides administrative and operational coordination, funded by interested range government.

Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and-Eurasia, UNEP

Abu Dhabi, UAE, 1.11.2008

The aim of the MoU is to ensure that all populations of African-Eurasian migratory birds of prey (including owls) are maintained in, or returned to, Favourable Conservation Status within the meaning of Article 1(c) of the CMS.

The MoU contains, *inter alia*, a list of general conservation measures, a section on implementation and reporting, as well as final provisions. It is accompanied by an Action Plan containing specific actions to be implemented by the Signatories, among which the development and implementation of action plans.

Paragraph 12 of the MoU requires the signatories, within two years of entering into force of the Agreement "*to prepare and submit to the Coordination Unit where appropriate a national or regional (e.g. EU) strategy or equivalent documents (e.g. Single Species Action Plan) for category 1 and, where appropriate , category 2 species in Table 1 in the Action Plan*".

Convention for the Protection of the Marine Environment of the North-East Atlantic (**OSPAR Convention**)

Paris, 22.9.1992

and in particular

Annex V to the OSPAR Convention on the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area

To protect and conserve the ecosystems and the biological diversity of the maritime area, and to restore, where practicable, marine areas which have been adversely affected; and cooperate in adopting programmes and measures for those purposes for the control of the human activities

[3] **A flyway is** "the entire range of a migratory bird species (or groups of related species or distinct populations of a single species) through which it moves on an annual basis from the breeding grounds to non-breeding areas, including intermediate resting and feeding places as well as the area within which the birds migrate." Gerard C. Boere & David A. Stroud, 2006.

identified by the application of the criteria in Appendix 3 of the Convention.

Part 2 - Experience with Bird Species Recovery Plans in the EU

2.1 Bird Species Recovery plans produced by the European Commission: Overview

Of the c. 10,000 bird species in the world, c. 530 occur regularly and naturally in the wild in Europe, including c. 460 in the European Union. While 12% of the world's bird species are considered to have a relatively high risk of global extinction (BirdLife International 2012, www.iucnredlist.org), the list of globally threatened birds in the EU includes 45 species (<10%). At the regional level, recent assessments have shown that 43% of the bird species are considered to be in unfavourable conservation status[4] in Europe (BirdLife International 2004a) and 48% at the level of the European Union (BirdLife International 2004b).

To date the EC has approved 67 recovery plan type of documents (Species Action Plan, Management Plan or a Brief Management Statement) for Annex I and Annex II species and subspecies (see Annex I for full list). There are 45 species or subspecies of birds listed as threatened or near-threatened by the IUCN Red List (2011) that occur in the wild state in the EU. Thirty six of them are already covered, along with 31 non-threatened species also covered by plans due to their unfavourable status in the EU. Thirteen species although Red listed, are not covered by such plans (4 threatened and 9 near-threatened) and some of them are priority for new recovery plans according to the method of prioritisation developed in Annex III.

According to the Birds Directive hunting of selected wild bird species may take place if in compliance with the principle of wise use and ecologically balanced control. This is an important consideration when those huntable species included in Annex II of the Directive that are considered to be in unfavourable conservation status are concerned. Therefore, important elements of the policy of sustainable use are monitoring and assessment of the conservation status of the species, the maintenance of suitable habitat conditions and if necessary, the implementation of focused recovery plans.

With this consideration in mind, the European Commission introduced the Species Management Plans for huntable species in unfavourable conservation status, following the success of Species Action Plans for threatened species. The first management plans were prepared between 1997 and 2000. Subsequently, they were updated and expanded to cover EU27. The plan layout follows the AEWA International Single Species Action Plan format, which is applicable to both threatened and to huntable species. Up to date such plans are approved for 13 species (see Annex I for details).

Following from the principle of broader species recovery introduced above and building on the similarities between SAPs and MPs and taking into account the EC expressed intention of their streamlining, we are proposing the use of a single common term for both types of documents – *Species Recovery Plan (SRP)*. It is used throughout this document with this convergent meaning.

[4] Considered to be in an unfavourable conservation status are the species meeting the IUCN Red List Criteria at global level or at European level (BirdLife International 2004a),

2.2 Scope and methods of the assessment

Species recovery experience in the EU was assessed through:

- Taking stock of the existing Species Action Plans, Species Management Plans and Brief Management Statements in the EU.
- Literature review of the European, North American and Australian experience with species recovery.
- Consultations with services of the EC and Convention Secretariats through focal officials.
- Survey of the experience of the EU Member States through a formal questionnaire carried out between September and December 2011 (15 MS participated, see Annex II for details)
- Assessment of the experience of BirdLife International and some of its national partners, FACE, IUCN and other relevant NGOs with experience in international species recovery (e.g. Wetlands International, Wildfowl and Wetlands Trust, OMPO), review of past contracts.
- Organisation of workshops in the framework of the European Conference on Bird Recovery (Brussels,23-24.11.2010)
- Organisation of four workshops to develop species population assessments for bird species with insufficient knowledge about their status and evaluation for their suitability for recovery plans (Alghero and Bolzano, Italy and Brussels October, 2011).

2.3 Jurisdiction of the recovery plans

The recovery plans produced and adopted by the EC are not legally binding. They do not engage Member States beyond their existing legal obligations under the Birds Directive. Their function is to serve as management and reference tools to the Member State authorities in selecting, planning and implementing priority actions for the conservation of birds. The plans also provide guidance and stimulate the implementation of conservation measures (e.g. projects) by other interested stakeholders such as NGOs and local authorities. However, the Member States have a legal obligation under the Birds Directive to take "*requisite measures*" as to ensure the maintenance of their populations as vital parts of the habitats. Thus the officially approved by the EC recovery plans can be used as a benchmark for the nature of these measures. This would potentially allow judging the effect of these measures against commonly agreed objectives, targets and actions.

At the level of international cooperation, the plans ensure that coordinated action can be taken when implementation by multiple countries and stakeholders is required. Therefore, the EC is interested to promote the recovery plans beyond EU borders, using the framework of international agreements. The action plans developed or endorsed under the international environmental agreements through resolutions (CMS, AEWA) or recommendations (Berne) require voluntary implementation by all contracting parties, which are range states for the given species. For their implementation the countries are invited to provide regular progress reports, as part of the relevant reporting obligations. The Memoranda of Understanding concluded under the CMS, such as the MoU for the Conservation of Migratory Birds of Prey, are also non-legally binding and provide for similar implementation measures.

2.4 Who are the recovery plans written for? Definition of their target audience

Ideally recovery plans should be useful to all stakeholders whose actions may affect the status and conservation of the species/ habitat and whose behaviour has an impact on the species. However, there are limits to how much such documents can be used by the variety of stakeholders involved. Therefore, the international recovery plans have a relatively limited primary audience. In practice, these documents are primarily used by the MS central (and in some countries regional) environmental authorities and international and national NGOs for the purpose of informing and empowering their own policies and actions, including as frameworks for development of lower level plans (e.g. national plans for conservation of threatened species are required by law in several Member States). International recovery plans rarely reach beyond the immediate circle of nature conservation professionals as confirmed by a survey among the official authorities of Member States (see Annex II for details).

The typical recovery plan developed and approved by the European Commission works at supra-national level, which defines higher level users. Thus depending on the geographical scale three main primary users and stakeholders can be identified:

- the European Commission services in controlling the implementation of the Birds Directive and in pursue of its high level policies;
- the Member States environmental authorities as the plans clarify the means to fulfil their obligations under the Birds Directive;
- the international organisations with interests in birds and biodiversity, such as NGOs, Conventions, associations, as guidance for their prioritisation and planning of activities.

Since environmental authorities and stakeholders cannot achieve the goals of the plans alone, they must promote their integration. Thus international recovery plans can be used to inform development and biodiversity 'proofing' of sectoral policies at EU and MS level, as well as at regional and local level (the latter two rather indirectly, through e.g. national plans). They can help to identify and prevent threats to key species and habitats in the course of programming, impact assessment and implementation of sectoral plans and policies. Unlike national and local, the international plans are more general and strategic in nature and serve the purpose of providing concise reference to the species conservation needs, based on expert review of threats and management issues valid for a variety of local situations across the species range.

National and provincial plans have different users with different motives to take part (or not) in their development and implementation. It is important that plans developed at different levels for the same species are consistent. National and local plans are more site-specific and focused in their recommendations and can be used as blueprints for site management to be implemented directly by local stakeholders (e.g. land managers).

This distinction between the target audiences of the international and national plans determines the approach of their development as regards stakeholders' involvement and consultations. International recovery plans are high level strategic documents describing the principle threats and recovery strategy for the species as well as its biological and management underpinning. They should therefore be less concerned by local stakeholders and situations. The consultations with stakeholders should be organised primarily at international level through relevant experts and stakeholder representatives. Nevertheless, they should be written in an executive style using clear understandable language as their primary users are busy civil servants.

On the contrary, national plans should take into account national and local specifics and implementation arrangements. Such a distinction allows Member States to apply specific approach suitable for their national circumstances (flexibility). In the same time, international plans will contain objectives and recommended actions for the Member States to follow, and which have been agreed and approved in a coordinated way. Their formal approval and commitment to their implementation at international level should help Member States and interested organisations to use them for their operational planning.

2.5 Recovery planning cycle

Bird populations respond rapidly to threats and changing environmental conditions. This dynamism requires that species recovery would ideally be an iterative process, following a cycle similar to project management cycles. The rest of this chapter follows the sequence of the typical recovery planning cycle (Fig. 1).

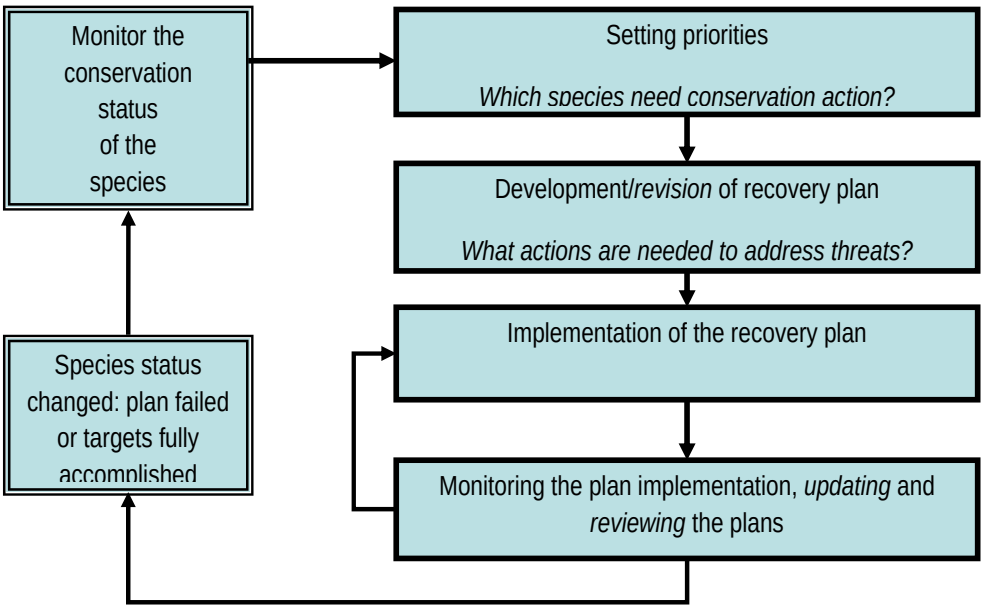


Figure 1 Species recovery planning cycle

2.6 Setting priorities: Selecting species for recovery plans

Ideally, in the basis of a decision to develop a recovery plan is an assessment of the latest population status of the species. To stimulate full implementation of the Birds Directive the EC has developed and adopted recovery plans for 67 bird species since the mid-1990s. Many of these plans target globally threatened species listed on Annex I of the Birds Directive (Species Action Plans) or huntable species listed on Annex II considered to be in an unfavourable conservation status (Management Plans). In general, the species were selected because of European and global conservation interest, with some exceptions. For full list of recovery plans approved by the EC see Annex I.

Two main factors have been taken into account in selection of species for Species Action Plans and Management Plans by the EC. *First*, whether the species (or on several occasions sub-species) has been listed in Annex I of the Birds Directive. Given the static nature of this list, initially composed in 1979 and only updated on rare occasions, this criterion has not been sufficiently flexible to take into account the evolution of bird conservation status and conservation needs. There are 192 taxa on Annex I at present, which means that for practical reasons this criterion alone is also not sensitive enough to prioritise among the species in need of special conservation measures.

A *second* factor has been the species current threat status. As part of the global IUCN Red List assessments the threat status of the world's 10,000 bird species is reviewed each year and species are assigned into categories of threat, relative to their risk of extinction. Although such assessment can be carried out at lower geographic levels such as continents and countries (IUCN 2003), only two comprehensive assessments of European birds have been completed so far and published by BirdLife International as the books Birds in Europe 1 and 2 (Tucker and Heath, 1994; BirdLife International, 2004a). Moreover, these regional threat status assessments take into account the entire European continent and the results cannot be directly applied to the geographic area of the EU where the Birds Directive applies. A regional approach

to identifying threatened species could complement global conservation status assessments, and could provide information at an appropriate scale for international conservation treaties (such as the Bern Convention) and legislation (such as the EU Birds and Habitats Directive) that have a regional focus. So far, only one such assessment has been made in the publication Birds in the EU (BirdLife International, 2004b).

In the absence of regular application of such regional approach to the list of birds in the EU, the selection of species has relied on the provision of expert advice to the Commission, reflecting the snap-shot of the conservation priorities at the time of its provision and limited by the information available and the expert judgement of the proponent. Such proposals have been put forward by BirdLife International and other stakeholders to the ORNIS Committee on several occasions (usually following Red List changes). Following approval by the ORNIS Committee of such priority lists the elaboration of plans has been commissioned to BirdLife International in partnership with other expert organisation such as Wetlands International and the Wildfowl and Wetlands Trust (Species Action Plans in 1993, 1999, 2004, 2008, 2009 and 2010).

As regards huntable species of Annex II, the Commission has requested the elaboration of a detailed needs assessment of 26 species (Tucker, 1996; Ref. D2/4294/1209) to be used as a basis for the preparation of "Restoration Action Plans" (later called Management Plans), as well as to the subjects to be dealt under each plan.

Migratory species listed in Annex II of the Birds Directive were taken as a priority for management planning, and an important criterion was if their populations were in *unfavourable conservation status*. However, in the absence of an officially approved system for conservation status assessments in the EU, the classification of a certain species status as favourable or unfavourable has been based as far as possible on the best available information from the entire range of the species by the time of publication of the regional assessment. Inevitably, the quality of these assessments depends on the availability of (published) information and its interpretation. Despite the fact that priorities among individual species within this category have been regularly consulted with BirdLife and FACE, their adoption and support among stakeholder groups has not been unanimous.

In conclusion, the process by which species were prioritised and selected for species action and management plans has not been particularly systematic or repeatable, although it has always been a subject of consultation with Member States and stakeholders in the frame of the ORNIS Committee. The lack of a system of stricter criteria has led in some cases to plans being developed for species of relatively low conservation priority, whilst others in greater need have been neglected. It has also been criticised as not fully transparent and with no clear audit trail.

Following from the above, it is clear that a system is needed, that is able to provide such systematic approach, incorporating precision, repeatable and scaleable methods and taking into account:

- the species' global threat status and regional threat status;
- the species' global range and range within the EU;
- the relative importance of its EU population as regards the global one;
- an assessment of the conservation status at EU level as favourable or unfavourable;
- the location of the non-breeding range and migration flyway (for migratory species).

In addition to the numerical criteria, the system should also consider the following questions:

1. Which species are of higher priority for a recovery plan at EU level? What would be the added value of such plan? Clearly species that cross international boundaries because of their distribution and connections between populations should be of higher priority for international cooperation.
2. Which is the most suitable international framework under which the recovery plan should be developed? This decision should be a function of the species distribution, its life cycle, as well as of the focus and priorities of these international frameworks. What should be the geographical scope of the plan?
3. What scope of plan should be most efficient? What is the potential value of single species recovery plans and when could a multi-species format be more appropriate? So far the EC has only produced and approved single species plans. However, as almost all species of high conservation priority are already covered, the Commission has expressed interest to explore the possibility of developing multi-species plans. This possibility has been mentioned in one way or another by several Member States.

Such a system to select species is developed and proposed in Annex III.

2.7 Defining the scope of the plans

i) Taxonomic scope

a. Single-species plans

To date, the single species recovery plan has been the most common format promoted at international level by the relevant agreements that produce and endorse such plans in the African-Eurasian region (Bern Convention, AEWA and CMS).

For species with distinct biogeographic populations, which can be delineated as distinct management units, the focus of the plans is the target population (e.g. the West-Mediterranean population of the Marbled Teal *Marmaronetta angustirostris* is a subject of an EC action plan, while the AEWA SSAP covers the entire global population of the species; the Mediterranean population of the European Shag *Phalacrocorax aristotelis desmarestii* and others).

It is important to point out that although the target of the European single species plans is the species (sub-species or population in question), the goals and objectives developed in the plans include the conservation of the habitats and ecosystems on which the species depends. By eliminating threats to the species and its essential resources (e.g. nest sites, breeding and foraging habitats, prey organisms, etc.) these plans *de facto* implement an ecosystem approach, as required by the Birds Directive. This is particularly valid for species that are closely associated with given species rich habitats and which can serve as flagship species for the conservation of entire ecosystems. An example of this type of plan working for

entire ecosystems is not available at European level, but at national level some examples can be found (e.g. Swedish Action Plan for the White-backed Woodpecker, box 2.1).

Box 2.1 Flagship species approach to ecosystem protection: Action plan for the conservation of the Swedish population of the White-backed Woodpecker (Dendrocopos leucotos).
Source: Mild, K. and K. Stighäll, Naturvårdsverket, *2005; Grzegorz Mikusinski,* PhD *(pers. com.)*

The White-backed Woodpecker is one of the most threatened Swedish vertebrates and is listed as Critically Endangered (CR) on the Swedish Red List. The species previously occurred in large parts of Sweden but today only a handful of breeding pairs and scattered single birds are known to exist. To deal with this dramatic decline of the species in Sweden, an Action Plan (AP) for the conservation of the White-backed Woodpecker was approved by the Swedish Environmental Protection Agency in 2005.
The White-backed Woodpecker is very specialized, requiring extensive forests with many old deciduous trees and plenty of dead hardwood. The severe decline of the species in Sweden is the result of loss of natural forest habitats with such attributes. The primary cause is the large-scale changes in the forest landscape that have occurred during the past century, mainly as a result of intensified forestry practices.
The White-backed Woodpecker has also been proposed as one of the primary indicator (umbrella) species for deciduous and mixed forests of high conservation value in the boreonemoral and boreal landscapes. Several studies have demonstrated the relationship between breeding White-backed Woodpecker and the occurrence of other threatened species. It has been estimated that more than 200 red-listed species in these boreal and boreonemoral deciduous environments will benefit significantly from the action plan – chiefly various species of lichens, bryophytes, fungi, beetles and other birds that are dependent on standing dead hardwood and old deciduous trees, mainly aspen, willow, birch and alder. The action plan for preservation of the White-backed Woodpecker is therefore not just an action plan for this species, but also a way to protect a variety of other threatened species with a similar range and similar habitat requirements.
The long-term objective is to re-establish a favourable preservation status for the species and its habitats with specific targets of 50 reproducing individuals by 2030, 100 by 2040, 200 by 250 and 500 by 270. The short-term goal for 2010 was a discernible population increase.
Planned actions for 2005-2008 included:

- Designation of nature reserves on the species' remaining core areas;.
- Management and restoration of biotopes with high to moderate current;
- Creation of deciduous-rich habitats, for example by using controlled burning;
- Voluntary protection and management of suitable areas for the species;
- Increasing deciduous fractions in the landscapes (e.g. by reducing stocks of elk and roe deer).
- Breeding and restocking.
- Continued annual follow-up and monitoring of the population.
- Targeted information to concerned landowners, landowner organizations, forestry companies, timber buyers etc.

The costs of the actions proposed in the action plan during the period 2005–2008 amount to around SEK 200 million (c. €20,7 million), of which about SEK 160 million (c. €16,4 million) pertains to area protection and about SEK 22 million (c. €2,4 million) to management measures.
The implementation of the AP for the White-backed Woodpecker has only partially been successful. The breeding population of species in Sweden in 2011 was still at the critical level (some 4 pairs detected). The implementation of particular conservation measures was generally lower then planned. Some of the planned measures seemed to be much more favoured then others and large differences between different

regions and organisation where AP was implemented were observed. Some very positive signs of successful habitat restoration have been observed especially in terms of improving conditions for other threatened species (e.g. saproxylic insects). The recent research project analysing the AP calls for performing a rigorous analyses of cost-effectiveness of conservation actions. Overall, it seems to be too early to assess the effectiveness of the AP after only a few years. The significant, large-scale improvements of the habitat for the White-backed Woodpecker obviously need much longer period to be successful. Nevertheless, it is a very interesting and unique example of long-term conservation planning for an umbrella species with clear quantitative goals and engagement of many different stakeholders.

b. Multi-species recovery plans

There is very little experience with bird multi-species plans in Europe, especially at higher geographic scales. Some limited experience exists at national or regional level (only three MS confirmed) and the most common reported format is at a site level (e.g. Natura 2000 site management plans combining management measures for the qualifying species). Therefore we assessed the relevant international experience, as well as some national examples at different geographic scales. The following broad categories of multi-species plans were identified, and examples are given in boxes:

- Habitat based grouping of species (e.g. management of grassland birds in the Netherlands and Denmark, Irish group action plans for 10 bird communities);
- Threat/issue based plans (e.g. forestry and hunting of grouse in Finland, anti-poisoning plan in Spain and Scotland, sea bird populations action plan in the Western-Nordic region)
- Flagship species conservation plans benefiting entire ecosystems (e.g. White-backed Woodpecker in Sweden)

Box 2.2 Habitat approach: Meadow birds management in the Netherlands
Sources: SOVON, Ministry of Agriculture, *www.natuurbeheer.nu*

Approximately 70% of the Netherlands is covered by agricultural land. The country also hosts internationally significant populations of meadow birds such as waders, of which in the last decades, many species have declines severely. Between 1990 and 2000 the decline was 1% annually. Since 2000, the annual decline has risen to 5%. Monitoring takes place annually and the results are published (data from SOVON).
Unlike marshes, meadow bird habitats in the Netherlands are largely excluded from Natura 2000 as they belong to private farmers. Therefore, their protection and management is largely a question of balancing regulations and incentives. As the Dutch policy has shifted from species based, to habitat based approach, it relies increasingly on 'private land managers' to deliver habitat management actions as part of and on top of their business as usual. Thus the Government has promoted grant schemes and subsidies that are disbursed by establishing agreements with farmers. In 2008 just over 400,000 hectares of privately owned meadow bird habitat existed. The types of management agreements included basic nest protection (without management agreement), agreements for nest protection and land management through the Provincial Subsidy Agricultural Nature (PSAN) scheme and agreements on land management in the context of a meadow bird reserve. The most commonly agreed measures were postponed mowing and nest

protection. More than 11,000 volunteers and 14,000 farmers were involved by 2007 and 2008, a total of nearly €25 million were spent on such measures, the majority came from the subsidy PSAN.
On 1 January 2010, the PSAN was transformed into a Subsidy System Nature and Natural Resources (SNL), part of the agri-environment programme. It channelled public money into promising core areas where grassland management is adapted to the requirements of grassland birds (especially chicks). The disadvantage of the new scheme is that farmer's contract can last only six years. The results of the new scheme are not yet evident as improved population trends of the meadow birds.

Box 2.3 Stakeholder involvement approach: Multi-species bird action plans in Ireland
***Source: BirdWatch Ireland*, Species Action Plans**

BirdWatch Ireland has developed a new multi-species framework for the protection of Irish birds in the wider countryside incorporated into the Irish National Biodiversity Plan. The aim was to provide protection for priority, migratory and dispersed birds in the wider countryside and within the marine environment, a wider remit than solely for the most threatened species. The project was initiated to address some of the key areas highlighted by the European Court of Justice ruling against Ireland in 2007 (C-418/04) and the aim was to tackle dispersed, migratory and declining species of the wider countryside.
The targeted bird species included in the planning were taken from the national Red & Amber lists of "Birds of Conservation Concern in Ireland" and the regularly-occurring Annex I (Birds Directive) species in Ireland. A small number of national priority species not in the above lists were also included.
Birds were grouped as per their main habitat requirements, and an Action Plan was created for each group (10), by BirdWatch Ireland in consultation with a wide range of national and international stakeholders.
According to BirdWatch Ireland, such an approach was tried for the first time at this scale in any European country. The task was enormous and so needed to adopt an ambitious approach. None of this would have been possible without the support of a large number of stakeholders, researchers, ecologists and other experts.

Box 2.4 Management plan for forest grouse species in Finland
Source: BirdLife Finland

The Finnish Ministry of Forestry and Agriculture has been leading the development of a multi species management plan targeting four species of forest dwelling grouse species (Capercaille *Tetrao urogallus*, Black Grouse *Tetrao tetrix*, Hazel Hen *Bonasa bonasia*, Willow Grouse *Lagopus lagopus*). Although the plan was finalised in the autumn 2010, it is still not formally approved and has not yet been circulated for relevant parties for comments before ratification.
The plan looked through all species needs, species by species, and listed threats and solutions for individual species. On those basis recommendations targeting several or single grouse species were developed. So despite of being a multi-species plan it can be seen as a simultaneous process of four single species management plans.
The planning group consisted of grouse and forest specialists, government representatives, ornithologists and NGO representatives. The group was steered by civil servants from the Ministry of Forestry and Agriculture (who are responsible for game management in Finland).
In general there are many common issues in forest grouse species and this justifies the multi species approach in this particular case. In Finland these species are widely distributed also outside protected areas (although in general density is higher in conservation areas) and the main threat and solutions are in the hands of forestry. The way logging, draining and other forest management is done and especially the

adoption of grouse friendly measures by the forest companies is the key to grouse conservation. Of course this means an acceptance on the side of forest owners and managers that the measures will have an impact of their economic returns from forestry. A possible compensation comes from the fact that the measures will result in more grouse for hunting, which is very popular in Northern Finland.
Since no official assessment of the plan is available yet, we provide the personal assessments of one of the participating experts in the plan:
"I do not see how a multi species plan is more valuable than single species plans. In this particular case I suppose that it was convenient and wise resource use, but in many cases it can be the opposite. In principle the process involves analysis species by species and to identify the threats and their solutions. If they are similar or same, then you can unite the management needs and solutions, but also keep in mind that some species may have special needs, which should also be solved. In the modern world with limited resources you will probably pick up the solutions which are good for many and forget the single species needs - if they are in the same plan."

Significant experience with multi-species recovery plans exists in the USA, as multi-species approach has been increasingly followed by US Fish and Wildlife Service (USFWS) since the 1990s, under the Endangered Species Act. This experience has been systematically analysed and compared for its effectiveness with the single species approach (Clark and Harvey, 2002). It has shown that multi-species plans reflect a poorer understanding of species-specific biology, are less likely to include adaptive management provisions, and are revised less frequently. The authors conclude that multi-species recovery plans are less effective management tools than single-species plans. Given the increasing number of species covered by multi-species plans and the problems identified with these plans, they recommend that the USFWS re-evaluate its use of the multi-species approach to recovery planning, and such considerations have been included in the current USFWS guidance on recovery plans.

The experience and opinion of Member States about multi-species plans was assessed through a questionnaire (see Annex II, Questions C). The following summarised opinions were expressed:

- There is interest 'in principle' among MS to develop broader documents, especially in relation to the ecosystem and habitat conservation policy targets coming from CBD and the EU Biodiversity Strategy, but the concrete experience is limited;
- Several MS have already undertaken habitat based approach in practice (e.g. Netherlands, Denmark, Ireland), while others have adopted a threat based approach (e.g. Spain and Scotland on poisoning, Finland on forestry and hunting);
- The possibility to define and apply habitat management measures at site level by local actors was seen as the most attractive option of such plans. However, since none of the plans seem to be applied directly by these actors, the MS authorities still have the possibility to use single species plans for the same purpose. The only added value offered by multi-species plans in such case would be the combined use of resources during planning (lumping), which in the same time is also the main limitation of the approach as it leads to loss of detail and simplification;
- The fact that some species exhibit variation in their habitat preferences in different countries was seen as limitation as to how useful such plans can be at a higher geographical scales;
- Threats analysis provided by single-species plans was found to be more informative and accurate which is an advantage. If multi-species plans were to be used for the same purpose this advantage

should be retained by preserving elements of species-by-species analysis (e.g. two of the examples given by MS follow this approach);

- According to several MS (e.g. Belgium, Poland, Hungary) groups of species connected by their habitat requirements into guilds, can be served better by habitat based multi-species, which are closely dependent on the condition and management of the common habitat. They point out that such plans could especially be useful when these species are less specialised and not highly threatened.
- A habitat conservation approach could be most useful for species that are not easily identified and managed individually (e.g. because they are cryptic, and when they use certain habitats consistently across their range and life-cycle, or their detailed biology is not well understood). It can be expected that such species would benefit from improved management and protection of their habitats almost by default. Such an example was provided during the workshop on the conservation status of the jack snipe (*Lymnocryptes minimus*) (see Annex IV).

In summary, evidence and MS views suggests that multi-species plans should be approached by the EC with care, as they are:

- **Suitable at lower geographical scales (e.g. single country or site);**
- **There is limited successful experience with their use at higher levels;**
- **Suitable when data for individual species from a group is limited (lumping) but this inevitably leads to simplification and loss of important information;**
- **Not recommended for highly threatened or flagship species;**
- **Habitat based plans could complement, but should not replace single species recovery plans when threatened species are concerned;**

The decision of what taxonomic approach should be taken should be based on ecological and pragmatic reasoning. A proposal for such an approach is presented in Part 3 of this report.

ii) geographic scope

- *Single country*

For 15 European species (and sub-species) whose distribution is restricted to single countries and islands, but which are listed on Annex I of the Birds Directive, the plans have focused on the Member State in which they occur. The justification for spending Community funds on such single country plans comes from the fact that the EU has a common policy and shared target for biodiversity and thus the conservation of such species is a shared responsibility of the Member States. All of these species have been priority for LIFE co-funding.

- *European*

All 54 SAPs approved by the Ornis Committee and the European Commission have a wider scope than the EU where the distribution of the species so requires. Thus for the 23 SAPs approved in 1996 the scope was 42 European countries, for the 16 SAPs from 2000 – 28 countries, for the 8 SAPs from 2001 – 39 countries, and so on. Plans developed and endorsed by the Berne Convention are also of European scope (50 countries).

- *International (flyway) plans*

The need for a flyway approach (see Section 3.3) is widely recognised, as conservation of migratory species is only possible if all aspects of the annual cycle are included and if a good framework is available between the parties involved to inform each other and to agree on actions to be taken. Thus the flyway approach to conserving a migratory bird encompasses the entire range of the species, including the breeding and non-breeding areas and the sites of importance to the species during the different stages of its life-cycle. The identification and conservation of all key sites within a flyway is of prime importance.

From the EU Species Action Plans and Management Plans 18 have been endorsed at global level (CMS) and 6 at the level of the African-Eurasian flyway (AEWA) (see Annex I).

For some of the plans initially developed by the EC, primarily for implementation in Europe, their subsequent endorsement and revisions at international level has lead to the enlargement of their geographic scope. For example, the focus of the SAP for the White-headed Duck adopted in 1996 (Hughes and Green, 1996) was Algeria, Azerbaijan, Bulgaria, Greece, Israel, Romania, Russian Federation, Spain, Tunisia, Turkey and Ukraine. In 2006, following a review the plan was revised by AEWA (Hughes et al. 2006) and its geographic scope increased to cover the entire range of the species adding to the list Afghanistan, Armenia, China, France, Georgia, Iraq, Iran, Israel, Italy, Kazakhstan, Mongolia, Morocco, Pakistan, Syrian Arab Republic, Turkmenistan and Uzbekistan. At present, both versions of the document can be found at the EC website, which risks creating confusion as to which version is applicable for the range states in the EU.

Knowledge about species status and conservation needs is unevenly distributed, which leaves geographic knowledge gaps. For many of the species concerned, considerable efforts have been put by EU MS (e.g. through the LIFE programme) to fill in these gaps. As a result, the general pattern for many species now show relatively good knowledge of their status in the EU and much weaker coverage in the non-EU countries of SE and E Europe, Arctic Russia, Turkey and beyond Europe. Thus, several problems have been identified:

- For some migratory species (e.g. Arctic breeders, Sub-Saharan migrants) important knowledge gaps still obscure key aspects of their life-cycle and conservation issues. This is reflected in the quality and precision of the plans for such species, which despite of their global or flyway scope are typically focused on threats and actions in Europe.

- Second problem, which reinforces the effect of the first, is the availability and feasibility of participation in the planning process of experts from remote and resource poor countries. This is often exacerbated by language barriers both for published literature and direct communication.
- Third problem comes from the institutional and political differences between the countries. For example whether they are signatory to international organisations often influences the level of priority with which they perceive the conservation of migratory species (see Box 2.6). The same applies for their socio-economic background and political priorities.
- Finally, there are also implementation barriers (e.g. regions with no funding, weak communication, poor capacity) that hamper the effective implementation and communication around recovery plans.

iii) Political scope

The development and endorsement of recovery plans under different international agreements provides an opportunity for their implementation across the ranges of the species and a platform for coordination of actions on a flyway scale. For the plans prepared by the EC the adoption under international conventions and agreements expands their influence beyond the borders of the EU and makes it possible to address the species conservation needs in a coordinated way across their biological ranges, which would otherwise hamper the achievement of improved conservation status in the EU.

However, the coordination at international level poses challenges. Therefore, a need of improved coordination and turning the overlaps into synergies has been expressed by the key organisations working for international bird conservation, including the Secretariats of the Conventions (see Box 2.5). Some of the key problems identified are:

- There is considerable overlap between the objectives and obligations of Member States within the European Community and under international agreements. Despite a recent convergence trend and the willingness to improve coordination and procedures, the problem of insufficient coordination and additional workload on the same people to do similar types of tasks remain.
- The international agreements operate at different geographic levels and thus their scope differs also in terms of conservation priorities and objectives. Thus given species may be of high priority in the EU and not be a priority for AEWA and vice-versa.
- The coordination among the organisations has clear resource implications. Managing coordination itself requires human and financial resources, including for meetings and communication purposes. All of the organisations involved in this process operate on restricted budgets, which make coordination even more difficult. In the same time, bad coordination leads to further inefficient use of the limited resources and therefore its improvement is universally agreed as high priority.

- The Russian Federation is the principal breeding ground for large parts of the populations of many migratory species on Annex I and Annex II of the Birds Directive. The conservation priorities, protection and management of birds in this country differ considerably than the EU. Despite of its important role for such populations, Russia is not a signatory to AEWA and CMS, and this makes coordination at international level even more difficult.
- For proposals on how to address these problems see section 4.3 and Annex IV

Box 2.5 Needs for improved inter-agency coordination as perceived by AEWA

Align prioritisation methods and objectives:

- Different criteria are used, but often leading to overlapping priorities.
- Closer participation into prioritisation processes, alignment (as possible) and regular information exchange between the Secretariats of Multilateral Environmental Agreement (MEA) and the EC.

Synchronise development, consultation and endorsement (incl. review, update, revision):

- Certain level of coordination achieved, but need further strengthening
- Need of a clear communication line – informal panel? (MEA Secretariats, EC)
- Need of an agreed and simple inter-agency procedure for coordinated processes
- Need to produce flyway level plans involving all relevant countries, MEA and the EU using a common methodology/process and format

Coordinated implementation, reporting and monitoring:

- Early stages of developing coordination
- Need of a single coordination body – e.g. AEWA has developed Species Working Groups (SWGs) that work under AEWA umbrella but are required to involve all relevant MEA Secretariats, EC and stakeholders.
- Coordinated reporting (timing and format) and monitoring through the SWGs to all MEAs and the EC
- Increased regular funding from the EC and range states towards SWGs operation and plan implementation, including outside of the EU (plus transfer of knowledge and expertise)

Box 2.6 Improving cooperation with the Russian Federation for the conservation of migratory birds

On 2nd December 2011, in Hannover, Germany the Ministry of Natural Resources and Environment of the Russian Federation organized the workshop "Identification of International Cooperation Mechanisms for the Conservation of Migratory waterbirds and for Hunting Regulations" which was attended by 22 representatives from 17 national and international organisations from 7 countries. The workshop produced a Resolution, pointing out specific opportunities and action points in that direction, among which:

- Proposal to the Secretariats of CMS and AEWA to approach officially the Russian Federation and invite them to ratify these Agreements;
- To indicate the possibility for reservation as regard spring hunting, which is a key concern to the Russian Government that had been seen as an obstacle for ratification of the Agreements;
- To recognise further the need for increased cooperation between hunting and conservation organisations in the field of development of plans for the conservation of migratory birds in Eurasia;

- To underline the need of cooperation in the adaptive management of migratory bird populations used for hunting, etc

An intention for a follow up workshop in 2012 has been expressed by the representatives of the Ministry.

2.8 Development of recovery plans

The experience of developing, consulting on and approving recovery plans by the EC was analysed. Despite of some variation in time, participation and organisation in the process, in general it can be summarised in 10 steps (Box 2.7 and fig. 2). The role of the key actors in this procedure is presented in relation to the current procedure (Table 2, p. 44). The key milestones in this process are the production of a conservation status report, international expert workshop, production of first and second draft and consultations, which are discussed in separate sections in the text along with the problems identified.

Typically this process takes about one year (for SAPs) and several years (for MPs). In comparison, a similar process in the USA, following the procedures under the Endangered Species Act is completed in 2.5 years. Given the fact that the majority of the contributors to the planning process take part on a voluntary basis, as well as the limited resources invested in the planning process, it may be considered whether longer lasting procedure might achieve additional positive effects of the consultation process and higher levels of stakeholder involvement.

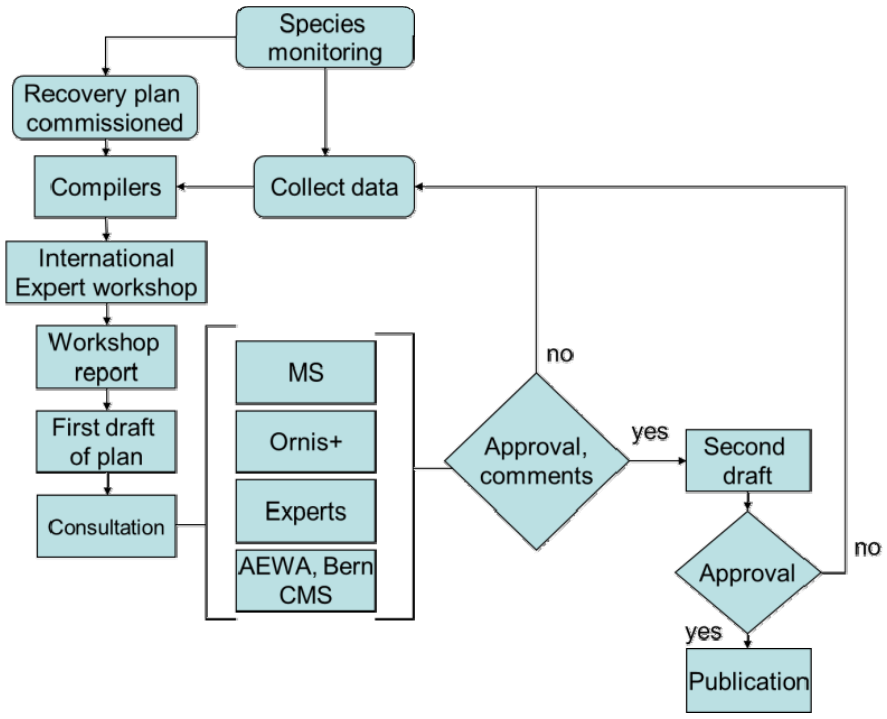


Figure 2 Simplified flowchart of the typical recovery planning procedure in the EU

Box 2.7 Ten essential steps for development of species recovery plans

Step 1:. The development of a single species recovery plan is commissioned and a budget ensured to an organisation hosting the lead plan compiler.

Step 2: Compile a list of experts, stakeholders and Member State contacts to be involved and consulted during the recovery plan drafting process.

Step 3: Prepare a draft status report for the species by desk research, collating the latest available information about the species concerned. At a minimum this should cover: current population estimates, distribution and trends from the entire range (if applicable) or the target population; biological information relevant to understand key ecological requirements and to diagnose the cause of population trends; and information about the known threats and their impact, relevant policies and legislation, ongoing conservation activities including networks of key areas for the species (Important Bird Areas) and designated protected areas.

Step 4: Publish the Status report online and send out materials for preparatory reading by the experts taking part in the international expert workshop, stakeholders and Member States. Collect additional targeted information to complete the Status report. [This information includes the draft texts for sections 1-3, and data tables in its Annexes, draft problem tree and supporting information (*e.g.* a population viability analysis).]

Step 5 (Optional): In case there are significant gaps in the required information which may prevent the development of a comprehensive recovery plan, the Commission may decide to proceed with additional information collection.

Step 6: Carry out an international recovery planning workshop, covering: review of status report findings, detailed threats analysis, scoping and contents of the plan, including goal, objectives, expected results, important actions and responsibilities.

Step 7: Prepare first draft of the recovery plan and send out for consultation to the workshop participants (contributors) and other species experts, to conservation managers in the range countries and to Member State officials.

Step 8: Incorporate comments from consultation, produce second draft and submit to the EC for distribution to MS, Ornis members and stakeholders organisations.

Step 9: Incorporate comments from the second consultation and submit final draft for approval by the Ornis SWG.

Step 10: Disseminate approved version widely, and encourage use by Member States when developing national action plans, and to develop materials conveying key messages in appropriate language to different stakeholder audiences.

i) Composition of the planning team (plan compiler)

The selection of an organisation to lead on the planning process in most cases so far has been done on the basis of tender procedures. The composition of the planning teams has been decided as a function of the lead organisation team capacity and profile. The inclusion (or not) of specific experts on the team was often decided on an *ad hoc* basis (i.e. no specific terms of reference provided by the Commission) by the organisation leading and managing the plan development, which also provided a planning process coordinator. In the cases of BirdLife (almost all species action plans) the lead compilers have been appointed from within the network of experts of the BirdLife partnership, or from another specialist organisation, e.g. in the case of waterbirds – from the Wildfowl and Wetlands Trust, Wetlands International, etc. The lead compilers were either internationally recognised experts with conservation background and experience with the target species or professional officers working full time on species conservation issues. It is worth pointing out that besides the plan coordinator and the lead compilers, all other experts and contributors have worked on a voluntary basis, which has both advantages and limitations.

In the case of Management Plans an initial list of 26 migratory birds of Annex II of the Birds Directive 2009/147/EC considered to have an unfavourable conservation status was agreed within the ORNIS Scientific Working Group. In 1995 on the basis of this list a study was undertaken by Ecoscope Applied Ecologists to investigate the measures taken by Member States for these species.

From the recommendations of the resulting report the European Commission designated the French ONCFS (French Wildlife and Hunting Agency) and Danish NERI (National Environmental Research Institute) to elaborate Management Plans for 9 Annex II species. Consequently the draft documents have been further developed with the help of consultants.

The following problems with the selection of both Species Action and Management plan compilers have been identified:

- In some cases the participating experts were chosen largely by the plan compiler, based on his/her experience and network of contacts and in accordance to the experts' current availability;
- There were no formal Terms of Reference for the planning team provided by the Commission to guide the compilers in the process of team composition and later stages of involvement of stakeholders;
- Due to the limited number of participants and their voluntary participation (defined by the amount of time they are ready to invest) the planning process is too open to influence by individual experts and is vulnerable to geographic and knowledge bias;
- The resources for the planning process have also limited the potential involvement of experts and stakeholder representatives external to the (conservation) organisation leading the process;
- The majority of participants in the planning process contribute voluntarily. This has implications on the amount of time and their availability for the process.

- One sentiment that has been expressed in surveys and in direct communication with experts is the insufficient level of acknowledgement provided by the planning team and the final plan users.
- Despite of the efforts to ensure wide participation, the composition of the planning teams and contributors is biased towards conservation practitioners, some researchers and field technicians.
- Missing or inadequately represented are communication experts, some key stakeholder representatives, officials from MS authorities, protected area managers and other relevant sectors.
- One of the main problems is the uneven geographic coverage of the species range by qualified experts. Mostly countries with active conservation teams are represented.

Box 2.8 Existing and potential expert pools for species recovery plans

In its work for action plans BirdLife had accessed a large global network of experts on species conservation issues. For example, under the IUCN Red List assessments BirdLife carries out annual reviews of the conservation status of globally threatened species using its web based forum[5]. Currently, more than 1750 species experts are registered users of this system, providing the latest (often not yet published) information about the status of species. This forum has also been used to solicit comments from the experts on draft plans.
Other organisations with access to pools of experts and with experience in recovery planning are IUCN, especially the Species Survival Commission, Member States authorities and their technical staff and experts, NGOs such as Wetlands International, Wildfowl and Wetlands Trust, etc.

ii) Preparation of Status Assessment report

The preparation of a Status Report is the first milestone in the development (and revision) of recovery plans. The purpose of the report is to gather in one document a synopsis of the available (and identify missing) information about the species status and population trends by country, policy and conservation actions already taken and ongoing as well as a preliminary list of threats identified during the review of information. The Status Report exercise serves as a preliminary 'fact finding' assessment, without which no further planning of conservation actions makes sense, particularly for species with gaps in knowledge. By disseminating the report as widely as possible the compilers reach out to potential data holders and experts that may not have been initially identified. A systematic and critical review of the facts helps crystallise the understanding of the species situation, which improves the quality of the next planning steps.

The process of producing species status reports is an integral part of the planning. It has demonstrated the advantage of working at an early stage with stakeholders and with different 'constituencies' to ensure access to a range of data sources, particularly for species which may not be covered sufficiently by monitoring schemes with publically available results.

In the review Member States have expressed the following concerns regarding the Status Reports:

[5] http://www.birdlife.org/globally-threatened-bird-forums

- The audit trail of the process needs to be strengthened – it should be clear which information is used and which not and why.
- Use of publicly available information should always be preferred.
- Not always achieving full agreement on results is a risk to any assessment. If high standards of transparency and credibility are followed this risk is significantly reduced. However, the risk cannot be completely removed so the EC should be prepared to manage this fact and take decisions. Regular review of the information would help to improve the situation in an adaptive way.

Under Task 3 of this contract population status assessments reports were prepared for four species using objective methods of data collection, analysis and discussion with experts and as far as possible, stakeholders (Annex IV). The production of the status reports required distilling large volumes of information into succinct format, its initial gathering from multiple data holders, its evaluation and presentation. For this process to be successful the main conditions were found to be: availability of data, the form it exists in and ownership both of which are partly a function of the distribution of the species; data compatibility is also an issue, as well as the objective evaluation of the quality and reliability of data (e.g. counting methods and units). The clarity and quality of communication between the compiler of the report and the data holders and the amount of time dedicated by the compiler to pursue individual contacts was an important factor for the final product.

iii) Organisation of the expert workshop

Following the compilation of the status report, the next stage of the process requires an expert assessment and distilling of a large volume of information into the succinct form. The workshop has the following tasks:

- Review the information gathered so far, fill in gaps and improve its coherence. A country-by-country review is helpful;
- Develop a systematic and logical threats analysis; specify and prioritise threats and review the evidence base on which this prioritisation is made; identify knowledge gaps and actions for their filling;
- Develop the strategy of the plan, including which strategic approach of recovery should be taken (e.g. what goals and levels of ambition for the objectives), what objectives and key actions; specify the objectives and targets per unit and/or per country as far as possible.

As part of this contract four one day workshops were organised to examine the current conservation status of four species and to assess the need of a potential recovery plan (Annex IV). Following the experience with four species workshops under this contract, one conclusion is that the network of contacts of BirdLife International and FACE offers a major advantage in choosing suitable participants and in organising the workshops. While this may seem obvious, its value should not be underestimated. The process of

producing status reports (particularly the workshops) were very useful in provoking discussion amongst experts and in reaching agreement on the species' status.

The workshopw require high level expert input therefore the participants should be carefully selected. On one hand representation of experts from the entire range of the species would be ideal. On the other, this has logistic, financial and communication limitations. The location of the workshop also influences the participation, so it makes sense to organise it the country with highest responsibility for the species. Another important factor to consider is the possibility to cover the costs of participation as well as to ensure professional translation services if needed. The facilitation of the workshop is also very important in order to achieve its objectives, especially in relation to timeliness and productivity of the discussions. From experience so far confrontation of views is less of an issue, as the workshop participants have mostly been very professional. The workshops demonstrated the importance of engaging contributors in a transparent, collaborative process that is facilitated and documented. The workshops were integral to the process of status assessment as they provided a platform for open, mediated discussion leading to agreement of data.

iv) Consultation procedures

Up to now, the development of action and management plans has been contracted out by the European Commission to external organisations, primarily to BirdLife International (action plans), Member State government institutes and consultants (management plans). In its contract specifications, the Commission has not requested a particular consultation process or method to be followed, except for the need to involve Member States' experts in the preparation of the draft and to incorporate comments on the draft received by MS representatives (ORNIS members).

An important disadvantage of the current system has been its timing: with contracts starting in January most of the drafting process and the workshop would coincide with the active spring field season, which makes it difficult to secure input from the most active experts. On the other hand, consultation periods need to avoid holiday seasons to maximise input by Member States and specialists. Resolving these time clashes would require the start of the drafting process to be adjusted so that the interactive phases of the planning to be done in the less busy months of the year e.g. October-March to enable consultation on drafts in April to June. Such a timetable would allow a longer time for additional input from Member States on later stages of the action plan development (e.g. September-December). Thus, at least 1.5 years would be required to complete the production cycle of a plan.

In the current process consultation is organised twice during the production of the plan, the main communication lines identified so far have been:

Official lines:

- Plan compiler to\from European Commission (submission of drafts)
- European Commission to\from Ornis Committee Members (circulation for comments)
- European Commission to\from AEWA, Bern Convention or CMS (information)
- Ornis Committee members to\from government services and experts (consultation)

- Ornis Committee members to\from national experts, scientists and NGOs (information, consultation)

Informal lines:

- Plan compiler to\from national and international experts, scientists (information, consultation)
- Plan compiler to\from national NGOs (e.g. BirdLife Partners) (information, consultation)
- NGOs to\from Ornis Committee Members (information, consultation)

The procedure (so far followed by BirdLife) has been as follows:

1. In the beginning of the planning process a list of experts and organisations with key competences and relevance to the conservation of the species is prepared by the plan compiler.
2. After the workshop, the first draft of the action plan is completed and published online (and circulated by e-mail) together with a number of supporting documents such as maps, tables and articles to the identified experts from the relevant range states.
3. A note is distributed through the BirdLife Partnership and to independent experts, pointing them to the website with the draft SAP and inviting their comments.
4. At the same time, the draft SAP along with supporting documents from the workshop is submitted to the European Commission as an official first Draft.
5. The Commission uploads the draft documents on CIRCA and circulates a letter to MS to invite them to participate in the consultation process, usually giving a deadline of 3 to 6 weeks for a response.
6. The received responses are compiled and analysed, and on the basis of that a second draft of the SAP is produced. Steps 3 and 5 are repeated until all issues are resolved through direct correspondence with the experts or through official communication through the Commission.
7. A final draft is submitted to the Commission for approval.

An assessment of the experience of 15 Member States shows that not all of these communication lines were equally effective (fig.3). In most cases the consultations at national level have been more successful in reaching the Nature conservation authorities and organisations, the agriculture, forestry and hunting authorities have been most regularly consulted. On the contrary, the fisheries authorities and the representatives of the private organisations in the above sectors were consulted least effectively. According to some MS responses, the effective consultation with these stakeholders depends on their relative power in the Government, on the time and effort invested by the leading authority and on the relevance of the issue to the interest of the stakeholder.

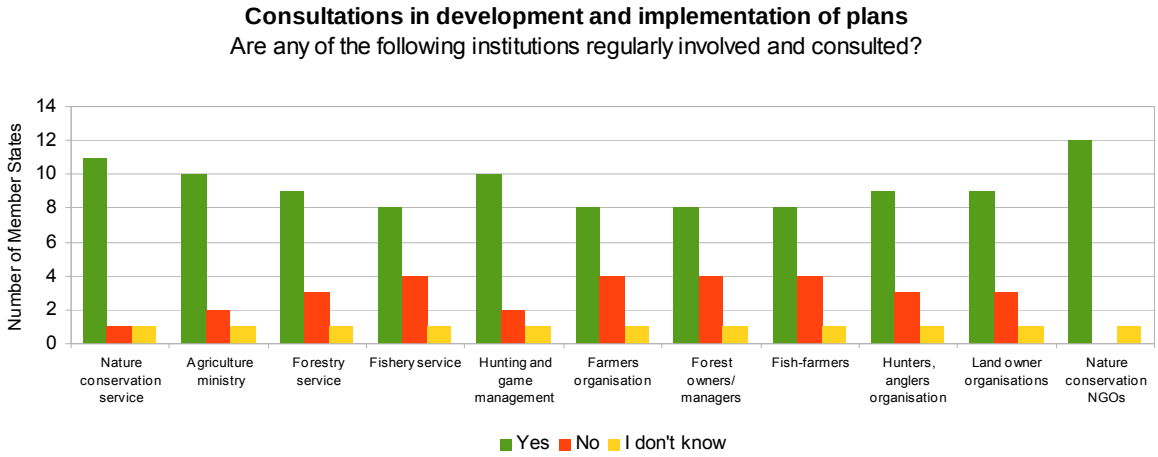


Figure 3 Consultation as perceived by Member States (source: Survey, see Annex II for details)

Some of the strengths and weaknesses of the current consultation procedures identified by Member States and some stakeholder organisations have been:

Strengths:

- *Workshops* proved indispensable in the action planning process. Maximising the use of ongoing initiatives, such as LIFE projects, conferences, and annual meetings of specialist groups, provides a cost-effective way to hold the workshops.
- *Excellent cooperation with ongoing LIFE projects and national/regional nature conservation and forestry authorities* in some Member States was achieved. This helped, for example where relevant information was owned by external stakeholders (e.g. forest authorities) and increased their buy-in.
- *Involvement of International Species Conservation Groups* in the elaboration of the action plans, and especially in reviewing the implementation of existing plans, helped with understanding the long-term impacts of threats and conservation activities, and gave an insight into the effectiveness of conservation measures for the species. Through linkages with the AEWA Intergovernmental working groups, it helped to include experts beyond EU borders but relevant for the plans' scope.
- Another positive step had been further *work along flyways*, promoted in particular by AEWA, which had established a good working relationship with the EC, Bern Convention and BirdLife. The collaboration by different international organisations and the *reinforcement of partnerships with NGOs* – such as BirdLife and Wetlands International – was the key for success in developing and later in implementing the plans.
- In the last three years, an improved coordination and communication on the *selection of species and time-tables* between the Commission and other international organisations and agreements was achieved, but a constant dialogue has to be maintained, especially regarding timetables and funding.

- As regards Management plans, in contrast to several of the action plans, the *planning process did involve stakeholders beyond the pure conservation community* (mainly hunting authorities and associations). This resulted in more in-depth consultation on the draft documents.

Weaknesses:

- The consultation has been focused mainly between the plan compilers, EC and the Ornis committee members. It was not effectively organised further down the chain within Member States, as well as with representatives of different stakeholder groups.
- Member States have identified as an important weakness of recovery plans the *insufficient consultation with stakeholders at national level*. Despite of regular practice of inviting comments to be given on draft documents, only few MS have experience with organised and interactive consultation on this issue (e.g. UK example of England Biodiversity Group).
- MS identified the following reasons for poor consultation results: no strong obligation to do it, lack of time and resources, too short consultation period, language of the draft documents is English.
- The EC could have given clearer indications as to what type of stakeholders need to be consulted, including by involving relevant DGs (e.g. Agri, Energy);
- The consultation process so far has been rather in one direction – provision of written comments. Sometimes dialogue would have been more beneficial.
- The paper trail of the consultation process has not been ideal – it had not been clear what comments are taken on board and what not, and the reason for that.

Specifically on the two types of documents produced so far in the EU:

Regarding Species Action Plans:

- *Lack of synchronisation of plan production between different international organisations has to be avoided* as it leads, for example, to MS being consulted several times on slightly different versions of a plan produced at EU, Pan-European (by the Bern Convention) and flyway (AEWA or CMS) level, sometimes with years between approval of the different versions of the plan.
- *Consultation period is too short or* at an *inconvenient time* e.g. when it coincides with a holiday period.
- *The two parallel streams of consultations (*official, by Ornis Committee, and unofficial, among NGOs and experts*)* sometimes *overlap* and create double work for the consultees and compilers.

Regarding Management plans:

- MPs were *not produced through expert workshops*, but largely as a desk exercise by consultants, often without particular expertise regarding the species concerned; this led to a number of the following weaknesses:
- lower technical quality, e.g. lack of focus on the priority threats and actions;
- difficulties in reaching agreement on technicalities by correspondence (e.g. where there is debate on the population size and trend of the species due to insufficient biological data and limited key knowledge, e.g. for Siberian breeding birds that winter in the EU);
- slower or unclear finalisation process due to lack of momentum and consensus on key elements;

- the approval process did not have a ready mechanism for resolving conflicts of interest among stakeholders, which hampered the approval of plans and (most probably[6]) their implementation.
- Failure to gain a sense of commitment from stakeholders, with disengagement from the process most likely where there was lack of consensus.
- Lack of formal approval of the latest MPs.
- A *temporary hunting ban* has been often recommended in the latest MPs. This option has sometimes discouraged hunters from getting involved in new MPs, fearing that it can easily lead to a permanent ban regardless of the further development of the species: either the species recovers after a few years and the improvement is attributed to the hunting ban which needs to be maintained; or the species does not recover and so there are calls to maintain the hunting ban.
- Lack of involvement (i.e. consultation) of the various actors at national level during the preparation of the MP.

Box 2.9 Recommendations of the Brussels Conference (23-24 November 2010) of Species recovery about consultation of plans

- The important process is the recovery of the species, not the production of the plan, therefore the consultation should be targeted specifically to those stakeholders that can support and enhance implementation.
- Motivation is an important contributor to implementation. Therefore effective consultation should provide easy to use information to the stakeholders and clarify their role and expectations.
- Incentives for people on the ground are important motivator for their participation in the recovery process. They should realize that plans are beneficial to their interests.
- Quality communication is key to the success of the plans. In particular, it is important to:

- - Translate the actions into the right language to be technically relevant.
- - Group actions into policy/sector relevant packages for better targeting and relevance.
- - Communicate the results of plan monitoring and allow for feedback.
- - Be inclusive and systematic during the consultation but ensure scientific rigour.
- - Communication should be results orientated and not bogged in process.
- - Clear and open communication is essential for all sides.

v) Participation of stakeholders

The participation of stakeholders in the development of recovery plans up to date has been a declared priority of the planning process. However, the actual involvement has not been widely successful, as reported by Member States about the levels of awareness about recovery plans among governmental services and non-governmental organisations. The results are summarised as strengths and weaknesses below and in figures 5 and 6 as reported by Member States (see Annex II for details).

[6] We are not aware of monitoring or evaluation of Management Plans to date.

Strengths

- Ownership and hence implementation of plans in Europe have so far been greatest among experts, associated NGOs and the nature conservation authorities of a number of MS where some mechanism for national implementation was in place (e.g. national plan, working group, LIFE project).
- Such ownership has been greatest where a participatory method for plan development was used and where for example the process was (co-) organized by a relevant international species working group (e.g. Aquatic Warbler Conservation Team).

Weaknesses

- By outsourcing the planning process, the EC has not been fully involved as a key stakeholder, which may have lead to other stakeholders underestimating the process and not taking part.
- MS report that engagement in plan implementation by non-conservation representatives of key relevant government sectors (such as agriculture, fisheries and energy) and stakeholders, such as landowners, hunters and businesses, has been weaker (Figure 5)
- Stakeholders can be confused where differing versions of the plans are available via different sources;
- There is a substantial problem with dissemination of international plans to people on the ground in countries, as well as to relevant international institutions. It appears to be the case that few are aware of them beyond those that have had a direct hand in their production. The reasons given by Member States on this problem are mainly concerning the non-binding nature of the documents and therefore the weak position of environmental authorities in negotiations. Secondly, the "championing" of the plans by volunteers can go up to a point in their adoption as official documents. Finally, MS have indicated that there is not enough demand for the implementation of these plans by the Commission (for details see Annex II).
- The (English) language used for the plans has been a major obstacle to their wider use at national level especially by local stakeholders and non-specialists.

A particular issue examined during the implementation of this contract was the possibility to involve stakeholders in the workshop discussions on the species status and threats. It was found that the participation of local stakeholders in such expert meetings is not realistic (see Annex IV, Lessons learned). Instead, in order to improve their representation it is recommended that planners should rely on NGOs, authorities and species experts that had already cultivated relationships with relevant stakeholders at both the local and national level. More realistically, local stakeholders should be included indirectly in the planning process

through social science methods and tools. The valuable contribution that local NGOs and experts can bring as regards cannot be overstated. Organisations that maintain open relationships and dialogue with stakeholders locally have always contributed significantly during the workshops. It could be considered pertinent that such workshops are organised locally (e.g. local workshops in local languages to provide stakeholders with an open platform to voice their interests and knowledge prior to the main European-level workshops). Proposals in this direction are discussed in the next chapter.

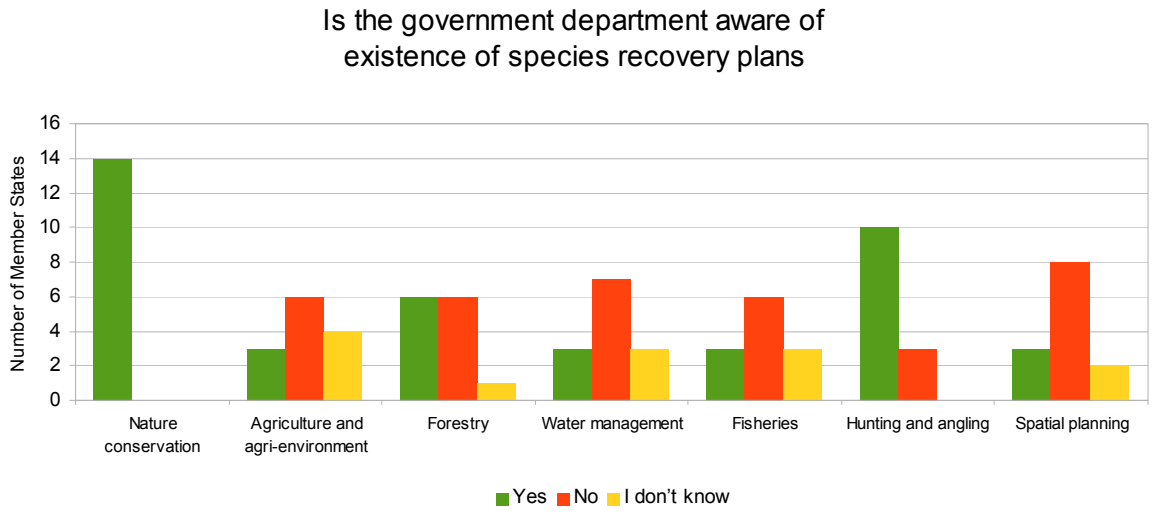


Figure 4 Awareness about recovery plans (source: Survey, see Annex II for details)

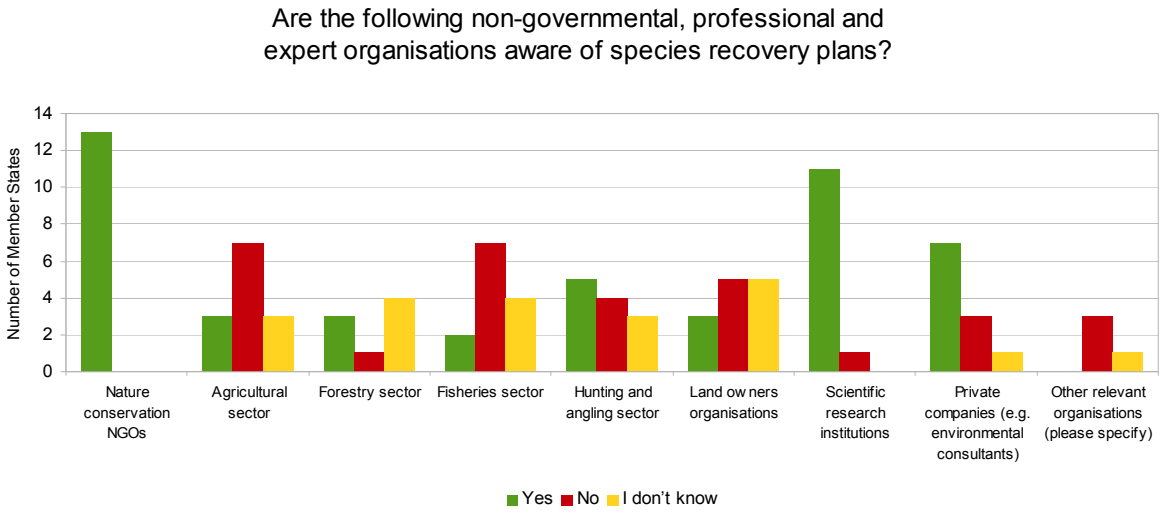


Figure 5 Awareness about recovery plans (source: Survey, see Annex II for details)

vi) Publication

Once completed, it is important that the recovery plans are published and disseminated to those that will work for their implementation them. Publications on paper have been done in the past for most plans (e.g. by EC for the Management Plans, by the Bern Convention, by AEWA). While it is good to have them published, ideally these are documents with relatively short shelf-life. There is no information about the circulation and distribution of the paper versions. Nowadays the web gives better possibilities to analyse and collect feedback about who accessed the documents, how often, etc. Asked about their opinion, Member States have provided some comments which are mostly related to the electronic distribution of the plans:

- The plans are not easy to find on the DG Environment website and they are only available in English (cf the AEWA plans are listed in a prominent section of the AEWA website and at least some are available in the key local languages, e.g. Russian and French);
- Maintaining the web-site up to date in order to always provide the correct version of the documents has been a problem in the past (the content of the website has been reviewed recently) ;
- It would be useful that this section of the web-site provides not only the plans themselves, but also information about how the species were selected and why, information about the progress in their implementation, feedback from the Commission on the progress by Member States, etc
- Presently, information about the implementation of plans cannot be found easily even at the LIFE website, despite of the great contribution of LIFE projects to the plans. The information there is organised by project and it is not easily analysed for content. It would be beneficial to the plan implementation if such analyses were carried out more often (e.g. assessment of the LIFE investment in certain species and or habitats).

Table 2 Roles and responsibilities in development of EU action and management plans (current process)

Steps	Plan compiler team	European Commission	MS Ornis C-tee member	MS Experts
Step 1: Pre-planning		Decides for which species should develop plans. Allocates budget.	Take part in prioritisation discussions and decision. Inform colleagues.	Provide information and comments.
Step2: Start up phase	Set up Planning team (Compiler + key experts)	Contracts plan compiler, following Call for tender.		
Step 3: Prepare draft status report	Collate data on population estimates, trends, life history, ecology, threats, legal status, conservation actions, policies, key areas, and protection status.		(Provide information as requested)	Provide information as requested
Step 4: Publication and dissemination of draft status report	Ensure wide dissemination of status report, including consultation with MS. Prepare expert workshop.		Receive information and invitation for expert workshop when relevant.	Receive invitations for expert workshop. Prepare for participation.
Step 5 (optional)	Proceed with additional collection of information	Support data collection from MS and Ornis members	Contribute with data	Contribute with data
Step 6: Planning workshop	Host and facilitate planning workshop to cover as minimum review of status report and gaps, detailed threats analysis, recovery strategy, objectives, key actions and responsibilities.		Take part in workshop if relevant	Participate in workshop, provide national expertise including knowledge on stakeholders' attitudes and implementation challenges.

Step 7: First draft plan prepared	Compile first draft of the recovery plan and circulate for comments to EC, MS, experts and international stakeholders.	Facilitate consultation with MS, circulate draft and template for comments. Review draft document and provide comments.	Review draft document and carry out internal consultations within their country services.	Review draft document and facilitate consultations with experts, technical staff and NGOs + national stakeholders.
Step 7: Follow up consultation on first draft	Receive and incorporate comments from EC, MS, experts and stakeholders. Follow up with 1:1 discussions if needed.	Provide comments from MS	Provide further clarifications if needed.	Facilitate further consultation with experts and provide clarifications if needed.
Step 8: Second draft plan prepared For international plans:	Based on comments and further analysis, prepare second draft. Submit plan to AEWA TC	Receive second draft and circulate for formal consultation with MS.	Review and provide comments on second draft.	Review and provide final comments through MS Ornis member.
Step 9: Finalisation and approval	Incorporate final changes and submit to EC for approval.	Approve the plans and inform Ornis committee.		
Step 10: Dissemination	Disseminate information	Publish the approved plans	Disseminate information	Disseminate information

2.9 Experience with the implementation of recovery plans

From the 54 EU supported Species Action Plans for priority birds since 1993, the implementation of at least 31 plans has been monitored and reviewed so far (Nagy&Crockford 2004, Barov&Derhé 2011) and the information collected in this process was used to update the plans and inform future conservation actions.

The need for a formal system for monitoring the implementation and evaluation of Species Action Plans (SAPs) has been communicated to the European Commission (e.g. BirdLife paper and presentation to the Ornis+ meeting on 4.07.2007) and to the Bern Convention (by the Convention's Group of Experts on the Conservation of Birds, 2002). It has been stipulated that such a system would catalyse and assist effective implementation of the plans. It had been proposed that such a system might be harmonised with, and possibly co-funded by the European Commission, by the Council of Europe or by the CMS and AEWA. However, such a system is not in place yet and all monitoring, reviewing and updating work so far has been carried out through short term contracts and on an *ad hoc* basis.

Up to now reviewing the implementation of action plans has been done by BirdLife through evaluation of their implementation using a methodology (Gallo-Orsi, 2001) based on information collected from respondents from most (if not all) countries where the plans apply. By comparing a set of scores attributed to each reported action and on average for the entire plan one can judge the relative effort made to implement each species action plan, to compare across countries and to see which actions are implemented better than others. Finally, by comparing the results of the implementation assessment with the latest available data on population size and trend, conclusions about the overall impact of the plans was made and the progress towards recovery of each species could be assessed.

Box 2.10 2010 Assessment of the implementation of Species Action Plans in the EU
Source: *Barov & Derhé 2011*
A 2010 assessment of 17 species action plans, collected and analysed by BirdLife International under a contract with the Commission has shown that highest levels of implementation have been achieved in species well covered by protected areas (e.g. Fea's and Zino's petrels, Dalmatian pelican) or localised in few places (e.g. the endemic laurel pigeons of the Canary Islands and Madeira). On the contrary, implementation has been weaker for species that are dispersed over large areas (e.g. lesser spotted eagle, lesser kestrel) and whose conservation requires tackling large scale land-use pressures, such as agricultural intensification, commercial fisheries or urbanisation, all of which continue to cause habitat loss and degradation (e.g. little bustard, Balearic shearwater). The conclusions from this evaluation have been published in a DG Environment brochure **Bird Species Recovery in the EU** (2011).
The LIFE fund has been the main tool used by the Commission to stimulate the implementation of priority conservation measures for the threatened species and habitats in the EU. For example during 1992-2003 LIFE-Nature has invested some €367 million in projects targeting threatened bird species. This figure is not yet final for the current LIFE+ period, but estimates were made for a subset of threatened birds for this assessment.
Other conclusions from this assessment are that sectoral integration remains the key challenge to the success of the plans and species recovery in general. Throughout the consultation, Member

States have indicated the need to have better examples of such integration (see Annex II, Questions E). For example the guidelines documents about Art. 6 have been useful in this context. Good examples are needed about integration of species conservation measures in Renewable Energy Plans, Water management plans and spatial planning and their environmental assessment.

Species action plans could work better if there were commitment for their implementation from the side of all relevant stakeholders. First, there should be an organisation responsible for coordinating their implementation and ensuring that these stakeholders are taken on board during the development and implementation.

The EC will need to look further how to stimulate the implementation of action plans. For example, by using them as a standard of good practice for species and habitat conservation measures and as tools supporting the diagnosis of conservation problems. As recent experience suggests, implementation could be encouraged by positive incentives (e.g. funding through LIFE) and stricter enforcement (e.g. enforcement cases similar to C-418/04 against Ireland).

Member States could use the action plans in a similar way when developing their national plans for biodiversity and for key policies and sectors such as agriculture and rural development, forestry, energy, infrastructure development and fisheries. Those Member States that have adopted the development of national or lower level action plans for species recovery (e.g. France, Spain, Italy and others) should ensure that these plans are compatible with and contribute to the implementation of the international species action plans.

One of the important deficiencies in the implementation of recovery plans in the EU (and to a lesser extent under AEWA) has been the lack of a responsible organisation or person to coordinate the implementation. To address this issue, AEWA has initiated the establishment of Species Working Groups (see box 2.11). The same applies at national level, as only few countries provided information about the organisation of this process in a systematic way. One positive example is France, where responsibility for the implementation of plans is delegated from the Ministry down to regional level structures and then to locally active organisations. In Spain, where plans for threatened species are legally required, the organisation is done at regional level (also regional plans).

Regarding the stimulation of the implementation, the Member States have expressed similar concerns (see **Annex II** for details):

There should be more regular feedback from the Commission as regards implementation of the plans. In order to have such information available for analyses, it should be collected through reporting (e.g. the new system under Art. 12 provides such possibility); In the same time, the reporting should add minimal extra work.

The Commission should send clear signals to MS authorities (not only environmental but especially to other sectors) of the need to implement the plans to deliver on the biodiversity commitments taken;

Box 2.11 Implementation of AEWA International Single Species Action Plans (ISSAPs)

Resolution 3.12 of AEWA MOP instructed the Secretariat to establish mechanisms to coordinate the international implementation of ISSAPs pursuant to paragraph 2.2.1 of the Agreement's Action Plan. The Secretariat developed a proposal in this respect, which was presented and approved by the Technical Committee. Under this mechanism Species Working Groups will be established for each ISSAP, consisting of designated government representatives of the principal Range States, as well as representatives of national expert and conservation organisations as invited to the national delegations. In addition, the chair of the working group may invite and admit international expert and conservation organisations and individual experts as observers. A part- or full-time Coordinator post shall be based in an organisation or institution, ideally in one of the principal Range States. The operations of the Species Working Groups, including costs of its coordination, shall be financed primarily by their members, i.e. the Range States, and in some cases, if applicable, by their observers. The AEWA Secretariat should seek to outsource coordination to organisations/institutions and formalise such partnerships through Memoranda of Cooperation (MoC). So far such Working groups have been established for three species in Eurasia – Lesser White-fronted Goose (hosted by AEWA and funded by the Governments of Norway, Finland, Sweden and Germany), Red-breasted Goose (still informal WG, hosted by BSPB\BirdLife Bulgaria and funded by RSPB, VBN\BirdLife Netherlands, WWT and recently by EC LIFE project), Sociable Lapwing (hosted by the Association for the Conservation of Biodiversity of Kazakhstan and coordinator funded by RSPB and Swarowksi Optik).

Box 2.12 Implementation of species recovery plans in Australia and the United States

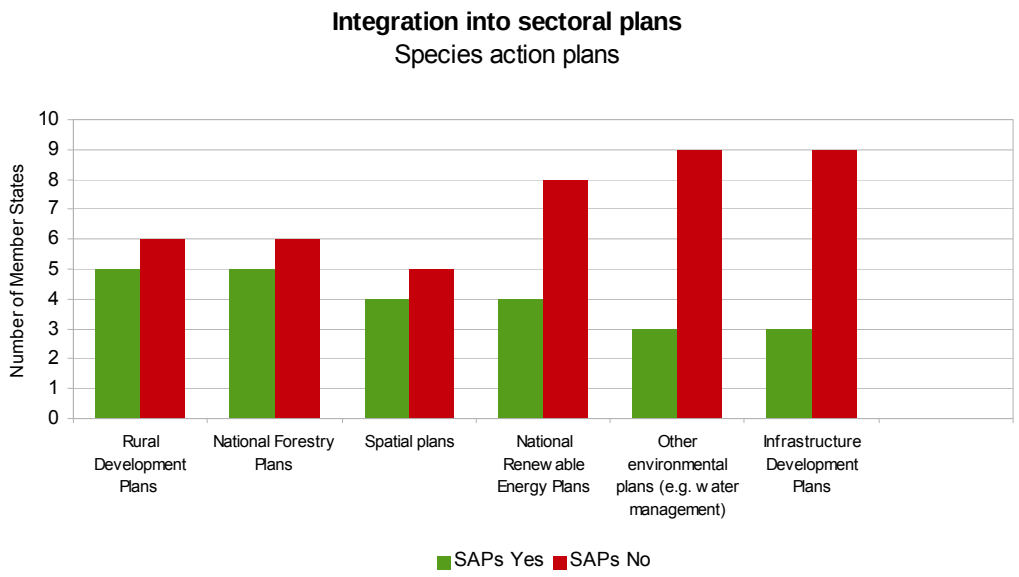
In Australia a survey by Ortega-Argueta (2008) among relevant experts and stakeholders found that the most influential issues relevant to the implementation of recovery plans are: coordination across Commonwealth, state and territory agencies, inconsistency of strategies and programs across jurisdictions, addressing management of threatened species on private land, incorporation of science into recovery planning, prioritising schemes for conservation action, and funding for the implementation of plans. The research recommended that recovery planning strategy may be improved by establishing mandatory monitoring and review reports; creating a national forum on threatened species; designing an appropriate insurance regime for volunteers; and establishing a national management information system.

In the USA Martin *et al.* (2005) analysed the population trends for 1095 species listed as threatened and endangered under the Endangered Species Act. The trends were correlated with the length of time the species were listed and the presence or absence of designated critical habitat and recovery plans. Species with designated critical habitat for two or more years were more than twice as likely to have an improving population trend in the late 1990s, and less than half as likely to be declining in the early 1990s, as species without. Species with dedicated recovery plans for two or more years were significantly more likely to be improving and less likely to be declining than species without. The proportion of species improving increased, and the proportion declining decreased, with increasing time listed throughout the 1990s, irrespective of critical habitat and recovery plans. On the basis of these results, the authors recommended increased funding for earlier listing of imperilled species and prompt provision of critical habitat and recovery plans.
A comprehensive assessment of species recovery plans in USA concluded that quantification and prioritization of threats have received insufficient attention, which contributes to the failure of some plans (Bolten *at al.* 2011).

As already discussed environmental authorities and stakeholders cannot achieve the goals of the plans alone, they must promote their integration into the work of the relevant sectors. The success with integration depends mostly on the political priority given to biodiversity by the MS, and this is also reflected in the relative "power" of the biodiversity conservation authorities. In recent years a trend towards decentralisation and reduction of the budgets for these functions has taken place in a number of MS (e.g. the Netherlands being one of the most notable examples). Thus the plans' value to the environmental authorities comes mainly from the clarity and accuracy of the information they contain, which can be used as a basis for proposals and negotiations among government departments.

One useful mechanism for translating the plans into local action is their integration into the national (or regional, or site) Natura 2000 management programmes and plans. Since Natura 2000 measures have stronger legal backing, this mechanism was reported as working by several MS (e.g. Slovenia at National level, Denmark at site level, etc). In a similar way measures coming from species recovery plans can (through Natura 2000 plans) be integrated and implemented through Rural Development (e.g. Netherlands, Lithuania, UK) and forest management plans (e.g. Finland, Sweden, Lithuania).

From the review it is evident that as such, the species recovery plans are not usually considered in sectoral planning documents (fig. 6, see Annex II for details). However, in some Member States (e.g. Spain) it is legally obligatory to take into account national species conservation plans. In others, the main mechanism for this purpose is the environmental impact assessment of sectoral programmes (e.g. Portugal,Spain, Belgium), while in other MS it was reported not to work (e.g. Slovakia, Poland).



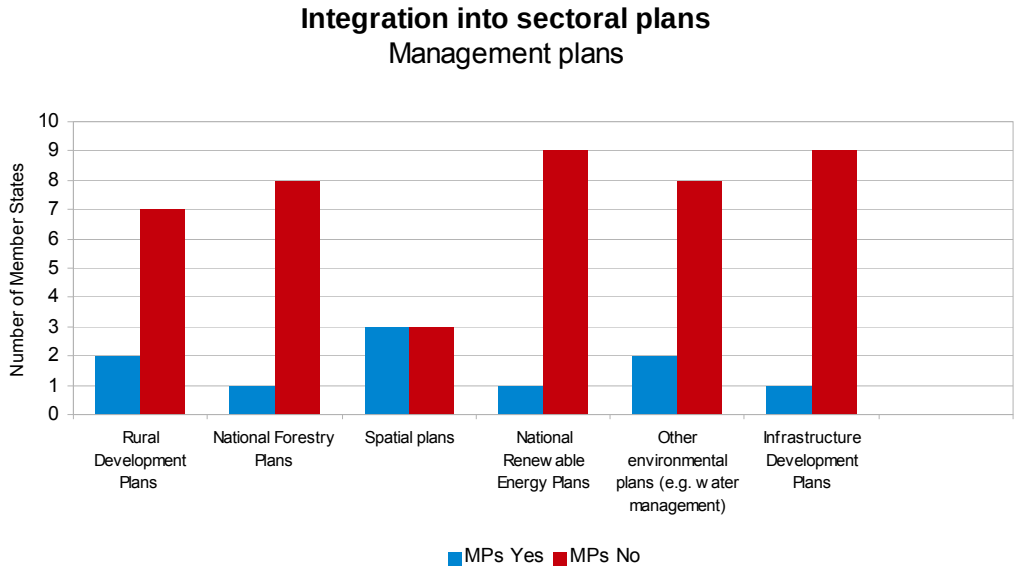


Figure 6 Levels of integration of recovery plans in other sectors (source: Survey, see Annex II for details)

Specific recommendations made by MS:

- More regular review of the plans is needed to keep them up to date (even if no changes are made) and to facilitate their implementation (to serve as reminder);
- There should be following up, based on national reporting from the MS to the EC, to evaluate what worked and what did not. Reporting should be obligatory, every 2-3 years. Although implementation is not obligatory, reporting on what was implemented would stimulate implementation.

- Stronger link between the legal requirements of the Birds Directive and the implementation of conservation measures for the species across the country should be made and required by the Commission.
- EU should concentrate on such plans where working together at EU level will give a benefit, where common EU policies can contribute to solutions by taking into account the life cycle of the species.
- DG Environment should be more pro-active in promoting the conservation of these species in the sectoral policies of the EU for example by requesting the integration of measures from the plans into the sectoral policies. Integration should work both at EU and at MS level, EC should take the lead and show example.
- EU should play stronger role (e.g. through development cooperation) to find and promote solutions to threats to migratory birds at the wintering grounds located outside the EU.
- Implementation of the Management Plans has not been analysed systematically so far.

These recommendations are developed further in the next section. Table 3 summarises the strengths and weaknesses discussed so far in this section.

Table 3 Summary of the Member State experience with recovery plans (SWOT)

Process	Strength	Weakness	Opportunity
Species selection	⅄ In line with European level priorities ⅄ Focus on threatened species ⅄ Understandable and supported by most MS	⅄ Only few relevant species per country ⅄ Some key (for MS) species not covered ⅄ Selection criteria not explicit and process unclear to MS (esp. for management plans)	⅄ Multi-species plans around common issues ⅄ Plans focusing on specific populations and regions
Species status assessment	⅄ Assessments at population level and taking into account the range of the species.	⅄ Data audit trail needs to be strengthened ⅄ Use of publicly available information ⅄ Not always full agreement on results	⅄ Link to future Art. 12 reporting system ⅄ Establishment of national panels for data review
Plan development	⅄ Helpful as guidance for national plans and Natura management plans ⅄ Helpful to understand the threats and conservation needs of species ⅄ Benefits of working in partnership with NGOs and stakeholders	⅄ Procedures rely on voluntary effort ⅄ Low capacity of authorities to carry out	⅄ Setting up of official planning committees to better organise the process ⅄ Improve stakeholder involvement and buy-in by using suitable methods
Consultation	⅄ Involvement of expert groups and active projects ⅄ Efficient use of meetings and conferences to reach relevant experts ⅄ Useful to have workshops to iron out differences	⅄ Consultation within MS ⅄ Difficult to reach local stakeholders with current methods ⅄ Synchronisation of consultation procedures by different organisations ⅄ Too short	⅄ Further improve coordination on international level ⅄ Use internet tools for dialogue and interaction ⅄ New Art. 12 reporting should improve data availability and focus
Stakeholder involvement	⅄ Legal requirement for stakeholder involvement in national plans ⅄ Works best among like minded stakeholders: nature conservation sector, forestry, hunting and sometimes agri-environment	⅄ Works least well with more 'powerful' sectors and players (e.g. energy, agriculture, fisheries) ⅄ European recovery plans are too general for local stakeholders ⅄ Language barriers	⅄ Designate planning team with wider competences and clear ToR ⅄ Ensure extra funding for planning and evaluation (e.g. LIFE+) ⅄ More focused and pro-active approach
Adoption/approval	⅄ Procedures at EU level worked well	⅄ Not clear who is responsible for the adoption, implementation and monitoring of each plan	⅄ Commission to be more active in promoting the plans and requesting information from MS ⅄ Formal communication and feedback from EC welcomed
Implementation	⅄ Good cooperation with existing expert working groups ⅄ Framework is provided for implementation through incentives and funding	⅄ No time-bound obligation to develop, implement and review plans ⅄ No plan Coordinator - person responsible to oversee and facilitate the planning, review and	⅄ Commission should request implementation and reporting from MS ⅄ Art. 12 reporting should cover recovery plans ⅄ Online and simple system needed to provide feedback

Process	Strength	Weakness	Opportunity
		implementation process • No budget estimates for the actions	
Monitoring & evaluation	• Evaluations done so far have confirmed usefulness of plans	• Many plans need updating • No regular (5 years) updating • MS not asked to report on recovery plans • Monitoring not integrated in the management cycle • In its current form recovery plans are not conducive to adaptive management. • Their management cycle too slow (operates at too high level) • Monitoring actions are not sufficiently integrated in the plan (or missing).	• Link updating and revision of plans to Art. 12 reporting system • Link evaluation of plans to regular status reviews (e.g. Birds in Europe)
Plan format	• Concise reference document • Single species format works best for threatened and specialised species, good experience available	• Actions descriptions not specific enough – too general • Documents differ in quality depending on year of production and target species • Few MS have experience with multi-species plan formats	• Some MS interested in multi-species formats, especially for common threats and ecosystems • Habitat based plans could be used for groups of species in same ecosystem (e.g. wetlands) • Use planning language and design of measures compatible to sectoral plans (e.g. CAP) • Useful to keep country specific information about threats, priorities, and actions.
Commission support for implementation	• LIFE funding has been helpful for implementation	• No obligation for MS to implement the plans, no regular control by EC • No obligation to integrate into other policies and plans/budgets	• Include reporting on implementation as part of regular reporting to EC • Identify clear links to other EU instruments and budgets • Create links to Natura plans and PAFs
Communication from EC	• Basic information is provided regularly through ORNIS and website	• Website is too static and information hidden • 'Top-down' communication should be strengthened	• Regular updates from EC can be provided on the basis of MS feedback and reports • Maintain an overview of the implementation, using the web
Overall	• Useful experience accumulated in ~20 years	• Plans not binding, thus seen as lower priority • Objectives not always SMART	• EC to be more persistent in explaining need to take 'requisite measures' to species and to urge plan

Process	Strength	Weakness	Opportunity
		⅄ EU level makes plans less accurate in their description of specific threats at MS level ⅄ Insufficient use of socio-economic data ⅄ Insufficient use of GIS and spatial data ⅄ Most of the integration of bird conservation measures depends on negotiations and the power of the different sides is what matters most for the final outcome. The recovery plans alone do not provide sufficient leverage.	implementation ⅄ To produce regional and national recovery plans

Part 3 - Proposal for Principles and Improvements

I. Principles to be followed by recovery plans

From the analysis of the experience with species recovery plans in the EU it became clear that the plans are a useful additional tool that enables the environmental authorities of the Member States to implement the Birds Directive and related commitments. To be even more effective the plans should incorporate the following principles described in more detail below:

- Focused on priority species or a combination of them (section 3.1)
- Follow an ecosystem approach (section 3.2)
- Take a flyway approach to conservation of migratory species (section 3.3)
- Be flexible in their taxonomic scope (3.4)
- Contain objectives that are quantifiable and scientifically robust, but in the same time practical and understandable by the stakeholders (section 3.5)
- Implement a threat based intervention logic based on sound prioritisation of actions (section 3.6)
- Facilitate policy integration and institutional coordination (section 3.7)
- Implement a partnership approach to conservation (section 3.8)
- Build on communication, coordination and collaboration with stakeholders (section 3.9)
- Are maintained up to date and allow for adaptive management and learning through their monitoring and feedback (section 3.10)

3.1 Prioritising species for recovery plans

i) Method

A new method for objective prioritisation of species for conservation action based on transparent and logical criteria is developed and presented (see Annex III for details). The system is simple, adaptable (to cater for future expansion of the EU), flexible (so that it can also be applied to subspecies or discrete populations), scalable (to allow application at smaller and larger spatial scales, e.g. national and pan-European), robust and repeatable. It is kept simple as possible in order to generate a manageable set of clear priorities.

The prioritisation is based on a combination of criteria combining importance and urgency. A score for importance is allocated to each species, proportionally to the relative size of its EU population. A score for urgency is allocated as function of the species' latest global and EU threat status assessment available. Having scored all species for (1) EU responsibility/importance, (2) global status/urgency and (3) EU status/urgency, species were allocated to a category of priority in a prioritisation matrix (Table 1 in Annex III).

At the next step the list is 'fine-tuned' using the latest available population size and trend data giving higher priority to species with smaller or declining populations.

The method developed and presented here relies on a few key pieces of information about each species to prioritise their need for EU level conservation action. The EU level data set will be updated in 2014, using the first results of the new Article 12 reporting system under the Birds Directive. This means that the prioritisation method proposed here will need to be reapplied then. The ensuing priority lists should be treated as provisional, for use in the coming few years, but in need of update after 2014.

ii) Results

The method was applied to all (526) bird species considered in *Birds in Europe* (BirdLife International 2004a), plus *Grus leucogeranus* (which occurs regularly on passage in Azerbaijan) and *Oceanodroma monteiroi* (recently split from *O. castro*). In total, 74 (14%) of the species were classified in four priority groups (Table 2 Annex III) the rest considered not priority for targeted recovery efforts. Of these, 46 species of global conservation concern were classified as priorities for action (groups 1, 2 and 3), along with 28 additional species of EU conservation concern (all except one in group 4, see Table 3 Annex III). Thus Table 4 of Annex III presents the results of applying the guidelines for ranking these 74 species within groups and then downgrading 18 of them due to their marginal distribution or relative abundance in the EU.

It is encouraging that many of the species of global concern listed in priority groups 1, 2 and 3 have already received considerable attention since the mid-1990s, e.g. in the form of EU Species Action Plans and priority funding through LIFE projects[7]. As a result, many of them have stopped declining and are now recovering. Some species that were formerly in this category have even been removed from the IUCN Red List as a consequence, e.g. *Phalacrocorax pygmeus*, *Haliaeetus albicilla*, *Falco naumanni*, *Crex crex*, *Columba trocaz* and *Columba bolli*. These successes suggests that the more 'ad hoc' method used for prioritising species until now worked relatively well, at least for those of global concern.

It is also encouraging that a number of species in Table 4 of Annex III (e.g. *Numenius arquata*, *Limosa limosa*, *Aythya marila* and *Vanellus vanellus*) have been the subject of EU Management Plans[8] for huntable bird species considered to be in unfavourable status. Worryingly some of them have also been recently added to the Red List (e.g. *Numenius arquata* and *Limosa limosa* as Near threatened) reflecting their continuing decline.

Nevertheless, Table 4 in Annex III highlights a number of species in need of urgent attention, some of which are not yet covered by recovery plans, and even more of which are not currently listed as priorities for LIFE funding. These include several species of global concern (some only uplisted in the last few years), but also some species of EU concern, which could soon become globally threatened if their declines continue and their poor status is not addressed.

To this end, it is recommended that the 56 (i.e. non-downgraded) species in Table 4 of Annex III are treated as an interim list of top priorities for targeted conservation action (e.g. development of

[7] http://ec.europa.eu/environment/nature/conservation/wildbirds/action_plans/index_en.htm
[8] http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/managt_plans_en.htm

plans) in the next few years (i.e. until 2014). This may not involve many changes for most species, as many are already covered by existing SAPs or MPs, but some plans have never been evaluated, others have expired and should be reviewed. This schedule of plans' due times for review is incorporated in the table in Annex I, part A.

To ensure that EU resources flow to those species in greatest need, it is also recommended that the list of species considered as priorities for LIFE funding is revised accordingly. The current list is outdated and does not include some priority species. It does however include some species that fall outside even the 74 species in Table 4 of Annex III (as well as a number of subspecies – see below).

Of the 42 full species currently listed as priority for LIFE funding, 28 (67%) are also identified as priorities using this method, and should definitely be retained as such. The other 14 species currently listed should be considered for removal and they could be replaced by another set of 28 species identified as priorities using this method, 19 (68%) of which are already listed in Annex I of the Birds Directive (Table 6 of Annex III). Thus the new list will include 56 priority species from both annexes of the Birds Directive.

The proposed method is very much focused on the EU. It uses quantitative data about the size of the EU population that is possible to collect by the Member States. It does take into account those migratory species and populations for which the EU is an important part of the flyway. Thus, it allows the EU to play an important role in their global conservation efforts, in cooperation with its international partners. However, it is important that the EC take into account that the accession of new countries to the EU in the future is likely to shift priorities towards species that are currently not high on the list. For example, the approaching accession of Croatia (and that of FYR of Macedonia in the future) seems unlikely to change the current picture very much. On the contrary, the accession of Turkey or Iceland would alter things hugely. **If such accessions will occur shortly after the prioritisation exercise is due to be repeated, then it would be prudent to take steps to ensure that data from the relevant countries is included before setting the priorities for the next six (?) years.**

From 2014, the EC will be able to produce EU-level composite reports on the status and trends of all bird species every six years. **These reports will contain almost all of the information needed to re-run the prioritisation exercise above, so it would make logical sense to adopt the same six-yearly cycle for repeating it** (perhaps allowing a delay of one year to re-run it, i.e. starting in 2015).

Potential new plans to be developed

We examined **if based on the prioritized list (in categories 1-4) it was necessary to identify species that will require an updated (new/improved) conservation status assessment <u>before</u> suggesting them (or not) for candidates for a recovery plan.** Bearing in mind that the status of all European species will be reviewed in two years' time (Birds in Europe 3) we suggest that it is much more important to invest the limited resources towards species that we already know are threatened and which need urgent attention to improve their fortunes by 2020. From the four species whose conservation status was assessed as part of this contract, three are proposed for recovery plans.

Thus, the following list of potential plans has been compiled and can be considered priority by 2014:

(a) New single species recovery plans

- Rock Partridge *Alectoris graeca*: The status assessment undertaken under this contract (see Annex IV) has confirmed this need. Currently listed as Near-threatened (thus falling in Priority 2 using our method), there are different factors impacting on it across its range. Being a species of high interest for conservation and hunting (listed on both Annex I and II of the Bird Directive) and as there are no obvious other species to combine it with, an individual recovery plan seems appropriate.

- Dartford Warbler *Sylvia undata*: Currently listed as Near-threatened (i.e. Priority 2) it is relatively common and widespread in Spain, less so in France, Portugal, Italy (Sardinia) and the UK. However, the population trend for the species produced by the Pan-European Common Bird Monitoring Scheme suggests that it declined by 27% during 1990-2005 and if it continues to decline at the same rate it will soon qualify for uplisting to Vulnerable. In the same time very few research and conservation actions are targeting this species. An individual action plan should motivate the key MS to implement such measures. As the species is closely associated to some priority habitats (e.g. Atlantic heath scrub), an individual recovery plan may be developed using the species as a flagship for this habitat.

(b) Review of single species recovery plans

From the list of species recovery plans (Annex I) we extracted those that (1) have not been reviewed since adoption; we reduced the list by removing those species (2) whose EU population has shown clear recovery trend at least in the core range; (3) whose plans were developed in the last 5 years and (4) whose EU populations are small part of the global. Finally, the 13 Management Plans of huntable species have also not been reviewed (and their implementation evaluated) and as this issue has been raised during the assessment, we kept all of them on the list. We then prioritised the remaining species according to their global threat status starting with those that are threatened (Table 4):

Table 4 Recovery plans in need of review by 2014 (Red list category marked with * will be assigned in the 2012 edition of the Red List)

Species	Red List category	Year of production of plan
Priority 1		
Falco cherrug Saker Falcon	EN	2006
Saxicola dacotiae Fuerteventura Chat	EN	2002
Melanitta fusca White-winged Scoter	EN*	2007
Polysticta stelleri Steller's Eider	VU	1999
Aquila clanga Greater Spotted Eagle	VU	1999
Limosa limosa Black-tailed Godwit	NT	2007
Numenius arquata Eurasian Curlew	NT	2007
Emberiza cineracea Cinereous Bunting	NT	2003
Aythya marila Greater Scaup	NT*	2009
Priority 2		
Anas acuta Northern Pintail		2007
Netta rufina Red-crested Pochard		2007

Falco biarmicus Lanner Falcon		2000
Alectoris graeca saxatilis and *whitakeri* Rock Partridge		2000
Perdix perdix Grey Partridge		2000
Coturnix coturnix Common Quail		2009
Cursorius cursor Cream-coloured Courser		2000
Pluvialis apricaria Eurasian Golden-plover		2009
Vanellus vanellus Northern Lapwing		2009
Tringa totanus Common Redshank		2009
Larus canus Mew Gull		2009
Streptopelia turtur European Turtle-dove		2007
Alauda arvensis Eurasian Skylark		2007

Further to this list we added those species which plans were approved more than 5 years ago and whose 2008-2010 reviews concluded that none or only the short term targets were achieved (Barov & Derhé 2011). Those plans would require a revision (Table 5). Please note that these are all birds of prey, three of them with long generation lengths (i.e. recover slowly) and two are clearly migratory. Their revision could then be combined with other species (e.g. saker, lanner and greater spotted eagle) in the flyway framework of the CMS MoU of Birds of Prey and Owls. This is appropriate as all mentioned species' ranges are wider than the EU:

Table 5 Species action plans that require a revision due to failure to achieve their targets

Species	Target achieved by 2010
lesser kestrel *Falco naumanni*	Short
bearded vulture *Gypaetus barbatus*	None
Bonelli's eagle *Aquila fasciata*	None
lesser spotted eagle *Aquila pomarina*	Short

Almost all of the other globally threatened species within Priority 1, 2 or 3 already have more or less recent individual action plans, so we **don't** see a particular need to review those until after 2014.

(c) Possible group (multi-species) recovery plans

Based on the discussion in Section 2.7.i.b and 3.4.c we propose the following potential group (multi-species) recovery plans for species that are classified as priority by the proposed method:

- **Mediterranean shearwaters:** especially Balearic *Puffinus mauretanicus* (Priority 1, Critically Endangered) and Yelkouan *P. yelkouan* (Priority 1, Vulnerable), but also the Mediterranean population of Cory's shearwater *Calonectris diomedea scopoli*, which the status review (Annex IV) showed was exposed to many of the same factors. These species have similar distribution, biology and threat factors (e.g. fishing bycatch, invasive species and overfishing) requiring similar conservation measures, targeted at similar stakeholders. Since these measures could be integrated into common action packages, we suggest that a *threat based group plan* is considered.

- Baltic/North Sea wintering sea ducks: According to a recent comprehensive report[9] (Skov *et al.* 2011) the sea duck populations wintering in the Baltic and North Seas have shown marked declines since 1990, namely velvet scoter *Melanita fusca* (Priority 1, EN, EU management plan needs review), long-tailed duck *Clangula hyemalis* (Priority 2, VU), Steller's eider *Polysticta stelleri* (Priority 3, VU, EU action plan needs review) and greater scaup *Aythya marila* (Priority 4, EU management plan needs review). They are all connected by their wintering distribution in the Baltic and North seas and by their trophic needs – benthic fauna. It can be considered, in dialogue with AEWA, whether such a plan should extend to cover these species' Arctic Russian breeding grounds – or whether a separate group *habitat-based plan* is needed, taking other declining species into account.

- Vultures/scavengers: apart from Eurasian griffon *Gyps fulvus*, none of Europe's vulture species is in favourable status (although the cinereous *Aegypius monachus* and bearded *Gypaetus barbatus* have benefitted considerably from their action plans). Although most species in this group already have individual recovery plans, they suffer from similar problems: poisoning, electrocution and reduced food base and their EU populations are very small and fragmented. Most of the same problems affect the red kite population too at least in southern Europe. Having in mind the common threats, and possibly the solutions, *a threat based recovery plan* may be considered.

- Canary Island steppe/desert species and sub-species: houbara bustard *Chlamydotis undulata* (VU, Priority 3), cream-coloured courser *Cursorius cursor* and two endemic races of stone curlew *Burchinus oedicnemus* (all Priority 4) are all confined in EU to the eastern Canary Islands, where all are threatened by similar factors. A group *habitat based* recovery plan might also help the Fuerteventura chat *Fringilla teydea* (NT, Priority 2) if expanded slightly in scope, plus other declining endemic subspecies, e.g. black-bellied sandgrouse *Pterocles orientalis* (Priority 4).

- Lowland grassland breeding waders: Eurasian curlew *Numenius arquata* (NT, Priority 2, EU MP), black-tailed godwit *Limosa limosa* (NT, Priority 3m EU MP), ruff and lapwing (Priority 4) are all declining, as are other waders breeding in the same habitats that don't feature in the priority list (e.g. redshank, dunlin and snipe). These species are to lesser or greater extent dependent on similar habitat conditions. Thus a broader *habitat based plan* with focus on agri-environment measures for meadows could be beneficial.

Almost all of the other globally threatened birds with Priority 1, 2 or 3 already have more or less recent individual action plans, hence no particular need to review those until after 2014.

[9] This report outlines the results of the internationally coordinated census of wintering waterbirds in the Baltic Sea 2007-2009 undertaken under the SOWBAS project (Status of wintering Waterbird populations in the Baltic Sea). The estimated total number of wintering waterbirds was 4.41 million compared to 7.44 million during the last co-ordinated census 1992-1993. Despite the general declines stable or increasing populations of herbivorous species were recorded. While benthic carnivores with a coastal distribution have either shown moderate declines, stable or increasing populations, sea ducks with an offshore distribution have declined seriously.

3.2 Ecosystem approach

The EU 2020 Biodiversity Strategy takes an ecosystem approach to biodiversity conservation. Target 1 does not mention individual species, but talks about Natura 2000 and its integrity and about increasing the number of species and habitats with positive assessments of conservation status. The main instrument required is the full implementation of the Birds and Habitats Directives.

According to the Birds Directive the preservation, maintenance or restoration of a sufficient diversity and area of habitats is essential to the conservation of all species of birds, including migratory species. Priority is given to restoring the ecosystem links, not to long-term running species management programmes.

Wherever possible, recovery plans should focus on the broader view of species' status, by working to ensure the health of their habitats rather than the narrower view of looking at the species numbers only. In practice, the recovery plans should identify actions that are specifically targeted at the preservation and restoration of functional habitats and their ecological integrity. These actions should follow from a comprehensive and systematic assessment and prioritisation of threats acting at multiple scales: from individuals and sub-populations, to ecosystems and landscapes. Specifically this means that the analysis of threats should investigate both the direct threats to the species and its key resources and the indirect threats (drivers) that affect the habitats. Thus the actions corresponding to those threats should also be targeted at habitat conservation, management and restoration. Such actions should be designed for implementation at site level (e.g. protection of existing habitat features where they exist), at landscape level (e.g. ensuring availability of habitats at ecologically functional scale) and at biogeographic scale (e.g. ensuring network connectivity of important sites and habitats such as critical site networks for migratory waterbirds). Different stakeholder groups and implementation responsibilities should be specified for each level.

Birds are rarely so much specialised in their habitat requirements that measures identified for one species would not benefit a suit of others. What is important, during the threat analysis, is to identify those critical relationships between the target species and the vital resources provided by its habitats that act as weakest links – i.e. to which the species is most vulnerable. The advantage of single species plans is that such relationships can be investigated in finer details. If a group plan is considered, then it is important to identify those species in the group which are most vulnerable to given set of threats and prioritise the actions accordingly.

3.3 Flyway approach to the conservation of migratory birds

The fundamental principle of the flyway conservation approach is that all stakeholders in the entire flyway of the species work together towards the conservation and/or sustainable management of migratory species across their entire range (Dodman and Boere, 2010). This principle is enshrined in the most important multi-lateral environmental agreements (e.g. the Ramsar Convention adopted a joint work plan with CMS and AEWA focused on areas of mutual interest, such as the conservation of

wetlands used by migratory birds). Thus the flyway approach is dependent on effective international cooperation.

Given the strategic location of the EU territory in the core of the African-Eurasian flyway (Fig. 7) and the large number of migratory bird species involved, it is clear that the EU should actively pursue the development and implementation of recovery plans at flyway level, as it has done until now with most plans. In practice this means:

- Strong coordination at international level among all relevant organisations. Clearly defined geographic region and list of migratory species and agreement on who does what;
- Focus on the target population of the plan and its scope should be explicit and clear in the text of the plan.
- Understanding and acceptance by all parties involved which migratory species (and populations) need specific actions and agreement on what actions should be put in place;
- Development of recovery plans at the highest geographic level possible and practical, to encompass the entire species/population flyway;
- Elaboration of action plans with clear provisions for international cooperation in their implementation, including knowledge and resource transfer as appropriate. Arrangements on the implementation of those actions, including issues such as: by whom, who pays, time frame of implementation, what means of public involvement is required, and how should the effect of the actions be monitored, reported and evaluated.
- Opportunities for involvement of representatives from non-EU range countries in relevant meetings should be actively sought (e.g. by organising meetings at international forums).
- Incorporating of actions in EU funded projects that implement priority actions from the plans in countries in the entire flyway of the species, as well as actions that enable international coordination, information exchange and capacity development.

To this end, a Terms of Reference for an informal group for institutional coordination is proposed (Annex VI) bringing together representatives of the key organisations working on flyway level for bird conservation (AEWA, CMS, EC, Bern Convention, NGOs). This group should meet at least annually. The European Commission should play a proactive role in this group, promoting its priorities and their implementation beyond EU boundaries.

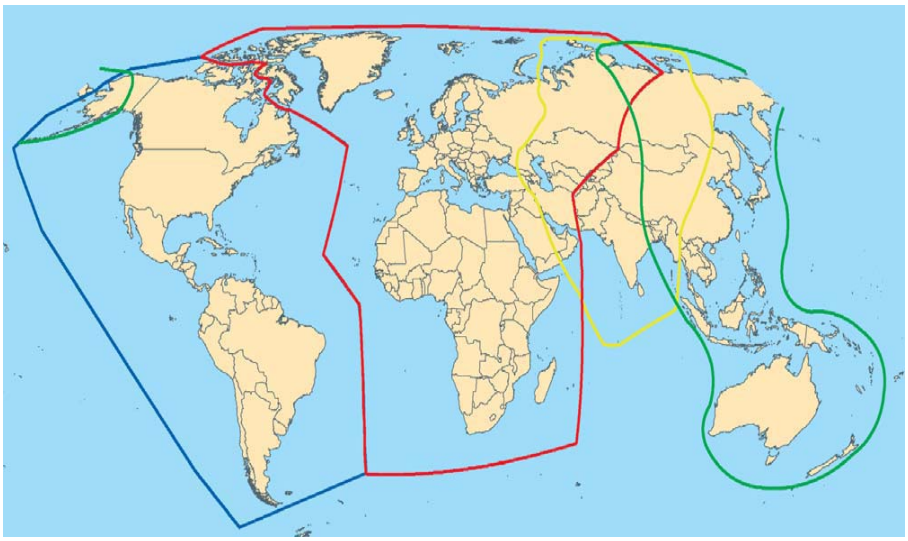


Figure 7. A possible geo-political approach to flyways (after Dodman and Boere, 2010)

3.4 Flexibility in the taxonomic approach - single or multi-species plans

At the level of the EU and higher, the EC should continue to give priority to single species recovery plans in all cases concerning highly threatened species requiring comprehensive conservation efforts as such an approach has been proven to work. The same approach should be kept in order to take into account highly threatened individual populations (e.g. West Mediterranean Marbled Teal, Iberian White-headed Duck) and distinct sub-species.

However, since the majority of such species are already covered by plans and as certain threats and management issues recur between species, the development of two types of multi-species (or group) plans could be considered appropriate and complementary:

- **Threat-based Plans**: Plans focused on common priority threats affecting more than one species (for example illegal poisoning, drainage of wetlands, electrocution, possible examples in section 3.1.c).
- **Habitat-based** Plans: Plans focused on priority habitats and ecosystems and their species communities (not only birds).

Table 6 Possible criteria for the taxonomic approach to be taken. The criteria are cumulative and should be used flexibly as guidance.

Single-species plan is preferable if:	**Multi-species plan may be developed if:**
• The species has a high risk of extinction (as indicated by its Red List status). • Data are available on the species'	• Limited data are available on the distribution of and threats to each species in a group of species sharing similar distribution and habitat

Single-species plan is preferable if:	Multi-species plan may be developed if:
distribution, status, and threats. • The species has a major ecological role, such as being a keystone species. • Conservation of the species will require protection and management of large areas of habitat, thereby serving as an umbrella for protecting biodiversity. • The species faces unique threats. • The species is very important to humans, economically or culturally. • There is an opportunity to develop a recovery plan for the species, afforded by strong interest by those with data, resources, or responsibility to implement conservation actions.	requirements. • Multiple species share largely overlapping ranges and habitats. • A guild of species with similar ecological roles is of concern (e.g. scavengers). • There are common threats to a group of species (e.g. poisoning by baits). • There are limited resources for or interest in multiple plans for individual species in a group. • Species with overlapping ranges have seemingly contradictory recovery needs that need to be resolved early to accommodate the recovery of both species (e.g. meadow breeding waders require short grass cover to breed, but are then vulnerable to predation by hen harrier).

3.5 Setting SMART recovery objectives

*"Supranational conservation policy can bring measurable conservation benefits, although future assessments will require the setting of quantitative objectives and an increase in the availability of data from monitoring schemes" (*Donald *et al. 2007).*

The objectives are central to the strategy of the recovery plan. To be measurable the objectives should be expressed in numbers such as population size and trend, range size, etc. Behind each population figure is a demographic mechanism leading to it, e.g. productivity and survival rate, recruitment of juveniles into the breeding cohort, immigration.

To adapt the structure of the recovery plans to the needs of species who may not be threatened and whose populations are to be sustainable managed, a third type of objective is added: management issue objective. For example, achieving sustainable harvest levels of a huntable species, or reducing the impact of the species to the environment.

Thus the logical structure of the recovery plan is centred on the relationship of threats/actions – demographic mechanisms – population objectives. It may be presented as the model (fig. 8):

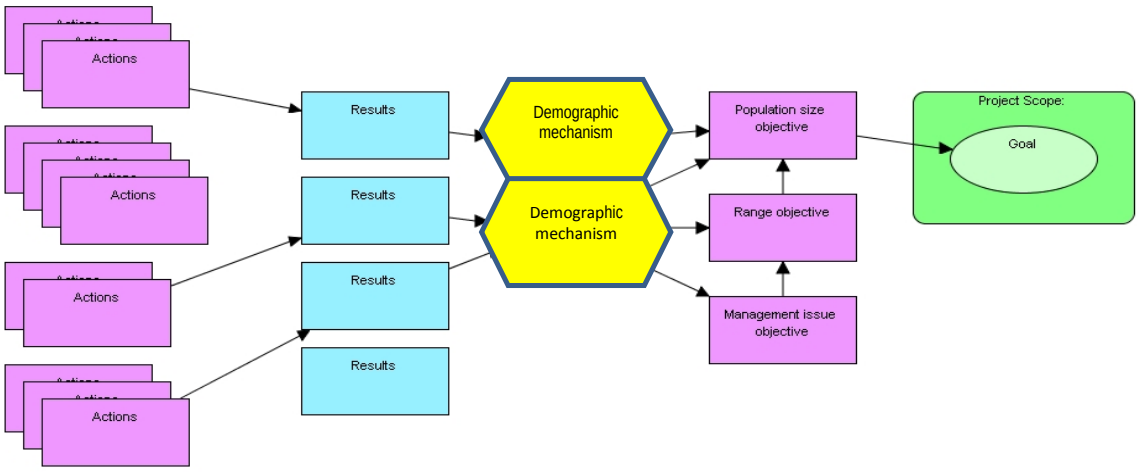


Figure 8 Recovery plan model

The goal of the recovery plan is the long-term desired state of the target species, to which the plan will contribute, but probably not achieve in its lifetime. The objectives set the biological targets for recovery of the population, planned within the lifespan of the plan. Each objective is characterized by specific numerical targets, usually on the basis of target demographic parameters for the population.

In Annex VII we have proposed modifications to the AEWA Single Species Action Plan format that is currently used by the EC. These modifications are discussed briefly in the relevant section.

In the AEWA recovery plan document format used by the EC, it should be necessary to insert a 'Recovery strategy' section which should summarize the logic and approach of the plan and the assumptions made in formulating the recovery objectives. It should explain what logic was used in the prioritization of the proposed actions. This section should contain, for example:

- Key facts and assumptions made in selecting the objectives;
- A brief analysis of the strategic options considered and justification of the choice made;
- Rationale for the proposed recovery approach.

In order to be explicit about how quantified and measurable the proposed objectives are, it should be necessary to define "recovery criteria" to specify each objective. Criteria are not a separate section in the plan, and should be provided together with the corresponding objective. Recovery criteria can be viewed as the indicators, whose target values show the progress toward achievement of recovery objectives in the course of plan monitoring. Therefore, the recovery criteria must be possible to monitor and measure repeatedly throughout plan implementation.

Recovery criteria = the values that the achieved objective should have reached because of successful implementation, and that should lead to recovery.

Using quantitative methods in setting recovery objectives

There are four aspects of the recovery plans that can be measured (and set) with the help of quantitative methods such as population modelling and diagnosing.

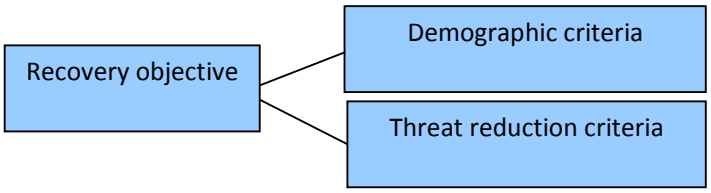
Population models can be helpful for:

- Diagnosing threats
- Quantifying threat impacts for prioritisation
    - Which threat to deal with?
- Measuring the impact of conservation action
    - Which life stage of the species to work with?
    - Which subpopulation(s) to work with?
    - What is a sustainable level of harvest?
- Setting recovery targets, realistic timescales and criteria for them.
    - How much of a change to the population trend is needed to achieve the objective?

Modern population ecology methods and techniques find increased application in recovery plans. When developing quantitative recovery objectives, there are two aspects to which population modelling contributes:

The first aspect is to help to clarify with the demographic process driving the species population trend. Since population decline and recovery is a result of demographic processes, target demographic parameters produced by population modelling can be used to quantify the impact of various threats on the population growth rate.

The second aspect is the effect of the conservation actions on the threats affecting the species. It is necessary to define criteria (or a set of) to reflect the state of improvement (abatement) of the key threats identified in the plan (threat reduction criteria). These are necessary to distinguish between effects of the conservation actions addressing threats and such aiming to reinforce the target population (e.g. restocking).



An example, demonstrating the need of both types of criteria could be seen in the management plan of a huntable Annex II species: temporary hunting restriction may lead to increased survival rates and hence increased numbers (demographic criteria) but mask the negative effects of habitat degradation (key threat). After the species has recovered, hunting ban will be lifted. However, the species may continue to decline, as the habitat degradation (threat reduction criteria) has not been addressed sufficiently. In such a situation, the decision of which conservation approach to be taken should greatly be facilitated by a robust population model and clear set of criteria.

However, it should be noted that the primary function of the plans is not to discuss scientific information, but to inform implementation by authorities. The scientific base for the plans should be

one of the important subjects for the expert workshops where expert decisions will be taken. The scientific information needed for the plans should come from appropriate scientific papers, which must be duly referenced in the plan.

Population viability analysis (PVA) is one of the possible tools that can be used to test the effectiveness of recovery criteria. PVA is based not only on a series of estimates about the vital rates of a species (and the uncertainty and variability of those estimates), but also on a series of assumptions about threat conditions and other variables, and their potential effects on the vital rates. Therefore, a PVA should not be viewed as a replacement for criteria based on threats, but as a way of quantifying their impacts on the population. The criteria describe the conditions under which it is anticipated that PVA would indicate long-term viability. Therefore PVA can be a useful tool in prioritisation of threats and actions (see example in Box 3-1).

Box 3.1 Example: Threats to Spoon-billed Sandpiper

Breeding in Chukotka, on coastal tundra in Russia's Far East, and wintering 5,000 miles away in the tropics of South and South-East Asia, the Critically Endangered spoon-billed sandpiper faces multiple possible threats including climate change, disturbance and predation on the breeding grounds, inter-tidal habitat loss on the migration route, and hunting in the wintering areas. Which are actually the important ones?

Quantitative data shows catastrophically low recruitment of young breeding adults (After Zöckler *et al*, 2010), whereas breeding productivity and adult survival are relatively normal for a species of this type.

A population model incorporating these demographic rates allows different conservation options to be evaluated. The expected population trend with and without hunting can be predicted. This shows that even with hunting mitigation, the population is likely to approach extinction in the next decade due to time-lags, suggesting that additional emergency action is needed. The model can then be used to evaluate the likely effect of a conservation-breeding programme and a head-starting programme on the extinction risk.

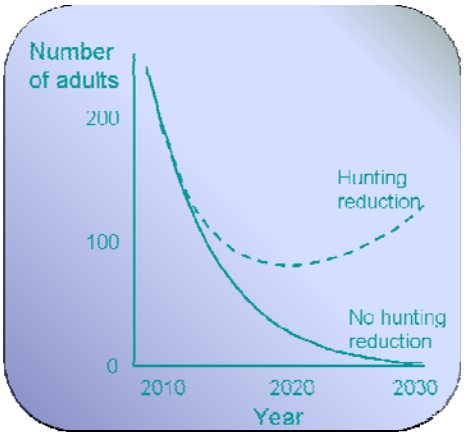


Photo: Elena Lappo/BirdsRussia

3.6 Implement a threat based intervention logic

Identification of, and strategies for dealing with, the threats that are contributing to the status of the species as threatened or are likely to recur in the foreseeable future, should be central to the recovery plan. A recovery plan must also outline the characteristics of a species that make it vulnerable to, and that would allow it to recover from, environmental, demographic, and human-caused threats. Finally, recovery actions should specifically reduce or remove each of the threats identified for the species, and monitoring schemes should be in place to follow the success in controlling them.

The collection of information about threats to the species and its habitats is of fundamental importance to further development of a realistic and effective plan. One should recognise the different roles and information available among the key stakeholders in relation to the threats and the methods of information gathering and analysis should take into account these aspects. The recovery plan document should thus present a transparent and scientifically credible method of threats analysis and prioritisation, supported (as far as possible) by an audit trail of the information used. In cases when threats can be associated to particular stakeholders' actions, it is very important to inform and involve the stakeholders in addressing the threats.

Lessons learned from the workshops organised for four species status assessments (Annex IV) have shown that when discussions involving different stakeholders are organised in a constructive way and when the data sources can be verified by independent researchers, agreement on the threats and status of the species can be achieved more easily. Even when the information is limited and in possession of a few individuals and organisations its sharing and open discussion (and criticism) is very productive (e.g. jack snipe example). Challenges still remain with species lacking coordinated monitoring and the need to invest in such schemes is confirmed. When such discussions are started at an early stage and are open to all sides, common understanding of the problems is easier to reach. It is important not to jump to conclusions before such discussions have taken place.

According to Bolten et al. (2010) "*the lack of knowledge regarding the relative importance of threats that each species faces leads to long "shopping lists" of actions that ultimately contribute to the failure of recovery plans*". In an attempt to address this problem, the researchers developed a tool to compare the relative risk of different threats to a listed species based on estimates of their impact on population growth rates (see section 3.5 about PVA methods). Inevitably, certain threats are practically impossible to estimate or measure, for example because of a chronic lack of data on mortality or emigration\immigration and recovery plans need to make and test assumptions. By using population models one can identify critical knowledge gaps where monitoring and future research is needed to better inform species recovery work.

3.7 Policy integration and coordination

As biodiversity and bird conservation is heavily dependent on the implementation of conservation measures and mitigating threats well beyond the nature conservation sector, policy integration is an essential requirement for success. Species recovery plans have to work hand in hand with policies that lead to structural changes of human production and consumption (key drivers). Recovery plans should be used beyond the immediate technical services dealing with species conservation. They should serve as well the following functions, summarized in table 7.

Table 7 Possible integration options of recovery plans

Function of recovery plans...	**... in relevant process or document**
Diagnose and identify drivers and prevent threats to species.	Impact Assessment, Strategic Environmental Assessment
Diagnose and identify direct threats and prevent	Environmental Impact Assessment, Appropriate

negative impacts on species.	Assessment, Forest management plans
Inform the shaping up of policy documents (e.g. agri-environment measures, structural funds)	Programming of Rural Development Plans, Environmental and Energy Plans, etc.
Guide priorities for funding by Community funds	Priority Action Frameworks for Natura 2000, national and regional structural funds, LIFE funds, rural development funds.
Organise discussions with stakeholders around priority actions at EU level	Implementation of policies and legislation.
Guide investments towards the implementation of suitable conservation measures by the relevant sectors and EU funds.	Commission screening of national programmes for community fund use.
Provide basis for safeguards in the sector plans to avoid negative impacts on biodiversity.	Commission screening of national programmes for community fund use.

In order to be more useful as a background document for interaction with other sectors and stakeholders, the recovery plans must present the information on threats, objectives and actions in a format and language understandable to those players. For example, when formulating an action in the field of agriculture, the plan should use the appropriate terminology for that sector and the description of the actions should be useful to the environmental authorities in their work and communication with their agriculture colleagues. This should also facilitate the use of the plans to inform national species action plans, conservation project developers, advisors and consultants.

Another recommended optimization is the grouping of similar actions into packages according to their relevance to particular stakeholders.

Furthermore, implementation and integration of recovery plans can be improved if the actions include information that can help their financing. For example, precise cost estimates of actions may not be possible and they will likely vary between countries. However, an indicative estimation of the magnitude of the expected cost (1000, 10 000 or <100,000€) and their recurrence (one off, periodic, ongoing) can be made. An indication of the possible funding source for each action or package of actions can be made, with reference to particular Community funding line, Member State budget lines, international donor organizations or industry sector.

This information should be organized in a concise and useful manner in the table of actions.

3.8 Partnership approach – strengthening the ownership of the plans

Achieving the EU and global 2020 biodiversity targets requires the full engagement and commitment of a wide variety of stakeholders. The recovery planning process offers suitable opportunities to bring stakeholders closer and the following principles should help to achieve it:

- Participatory planning, bringing stakeholders to the table together helps to break communication barriers and bring views closer. To be effective, this implies that the relevant stakeholders are consulted and involved in the planning process at the most appropriate stage and level (e.g. local stakeholders are consulted locally, while at European level the relevant stakeholder representative organisations are consulted, see table 8). The planning process is also a tool for educating and raising awareness about each other's views that works in all directions.

- Disagreements often stem from insufficient information or understanding of a problem, not necessarily from ignoring its existence. In such a case a clear conceptualisation by taking into account different viewpoints can be helpful to inform the discussions. A workshop with the participation of experts and stakeholders from the key countries is thought to be the most efficient way to create such environment.

- Creating and discussing maps of stakeholder attitudes can help improved understanding and finding solutions. Even if it comes down to differences in values, then it is still useful to have them mapped and explicitly stated than ignored. Identification of sources and areas of disagreement and voicing of legitimate concerns during the planning process is essential prerequisite for implementation later.

- Stakeholders are not positioned along two-dimensional axis of antagonism, but throughout multi- dimensional system of axes. An important role of the planning team is the ability to facilitate and integrate views, rather than give precedence to one set of views. Therefore the planning team should benefit from the participation of experienced facilitator whose role during a workshop, for example, would be to create and foster a “solution space”.

- The conservation policy should be based on sound data and scientific principles. Therefore, their gathering and evaluation should stay independent from the negotiation process. The planning process should be able to accommodate both aspects: data collection and scientific analysis on one hand, communication and involvement of stakeholders and negotiation on the other. While the expert workshop is the most suitable venue for a scientific debate on the available data, the assessment of stakeholder attitudes should be done using appropriate methodology (e.g. focus group interviews, opinion polls and other social science methods). It is not realistic to expect individual stakeholders to participate in the expert debates and their opinion is not necessarily equivocal (even less so than imperfect data).

A clear distribution of roles for the various actors combined with suitable methods of involvement in recovery planning are a helpful basis for effective partnership. Table 8 proposes such distribution of roles.

Table 8 Suggested roles of the key actors in recovery planning

Actors and stakeholders	Roles	At what stage of the process
Conservation biologists	- data evaluation - population modelling - diagnosis of problems - formulation of strategic approach - objectives, targets and criteria	- status assessment - data analysis - workshop - design of the actions
Social scientist	- stakeholder interests mapping - socio-economic analyses - diagnosis of problems	- data collection - workshop
Conservation practitioners, NGOs	- data collection and monitoring - design of actions - practical considerations - taking responsibility for action	- status assessment - data collection - workshop - developing actions - monitoring of the plan
Decision-makers	- leading on discussion with stakeholders - resource allocation - ensuring political support	- consultation on all aspects - coordination between the institutions
Stakeholder organisations	- take part in expert discussions/workshops - provide insight into interest groups - participate and facilitate consultations	- consultation on plan commissioning - consultation on draft documents - data collection
Stakeholders	- share information and opinion - provide insight into local situations - discuss and test solutions - help communication to other stakeholders - provide feedback to planners and decision-makers	- during the entire planning process, but especially during data collection and design of actions

An important challenge of plan production is to ensure the buy-in of those stakeholders who are in a position to catalyse implementation of the plan. Ownership of plans can come through direct involvement in their preparation, including participation in workshops and consultation on drafts, their implementation and monitoring.

Determining who the relevant stakeholders are can be a complicated process, as sometimes the links between stakeholders' activities and interests and their impact on the species may not be evident. These links become clearer in the course of the plan development (e.g. through threats analysis) but it may be pertinent to identify stakeholders at earlier stages in order to involve them in the planning.

As EU level recovery plans are general and strategic it is assumed that the stakeholder attitudes and role would vary from site to site. Therefore it is unrealistic to aim to include local stakeholders in the actual producing of the plan. Instead, their views should be studied with suitable methods and their

views should be represented in the planning process by their organisations at appropriate level (e.g. national for national plans, European for EU plans, etc.).

Stakeholder involvement is context specific and what constitutes effective involvement will depend on the context. One way of approaching this is to have stakeholder involvement in proportion to the expected role that the stakeholder will play, or to what extent the recovery plan actions may affect that stakeholder.

The initial identification of the key stakeholder groups has to be done at the pre-planning stage, so that relevant measures are incorporated in the design of the planning process. This will presumably be part of the scoping report to be done by the planning team and presented to the Commission.

Answering the following questions may help to identify the key stakeholders (see Annex IV for an example with Cory's and Yelkouan's shearwaters):

- Who are the people or groups most dependent on the species and its key habitats for their economic activity? Who are the organisations or individuals that best represent them?
- Who are the people or groups most interested in the recovery of the species?
- Who provided comments during the discussions on listing the species as threatened or in the initiation of the planning process?
- Who can help implement conservation actions needed?
- Who is likely to be responsible for the implementation of the plan?
- Who are the physical or legal persons in possession or lease of the key resources, habitats and sites used by the species, including legal jurisdiction or other rights?
- Who are the people or groups most knowledgeable about the species?
- Who specifically is having an impact (positive or negative) on the species?
- Who has been managing the species habitats?
- Have there been similar (similar species or area) conservation projects or initiatives and who was responsible? If successful, who was in charge and how did they involve stakeholders?
- What stakeholder participation might be missed without a special effort?
- Who is likely to mobilize for or against actions that may be needed?
- Who are the people or groups whose participation or not is likely to influence most the effectiveness of the conservation efforts?
- Who can contribute financial and technical resources? Who may raise funds for the plan implementation?

Determining appropriate level of engagement with the stakeholder is very important, as it may be counterproductive to spend too many efforts on stakeholders who ignore or negate the process. The matrix in Fig. 9 may be used to decide the appropriate level.

There are logistical limits to how far stakeholder involvement may extend. Offering full immersion (e.g. by becoming part of the planning team) should be limited to those that will bring relevant expertise to the recovery planning process. Stakeholders that represent interest groups, but which may not directly have experience or role in species recovery, should be involved in other ways.

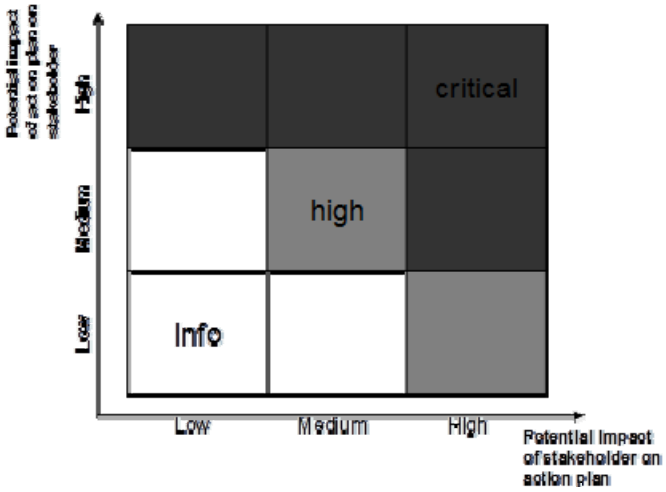


Figure 9 Matrix for determining appropriate level of involvement of the stakeholder in the planning process.

Once the list of potential stakeholders is compiled, it is important to identify the specific individuals that represent them, their names and contact details.

A step that may help identify the individuals stakeholders is the wide distribution and publication of the Species status report (cf. step 4 in table 10) and an introduction/invitation to the planning exercise by the Commission or other well know authority. The Commission may decide to use its formal or informal information channels and web-based tools for public participation (e.g. consultation websites).

Often there will be officials or stakeholders (usually from conservation NGOs but hopefully with increasing engagement in the process this can be done by other interested groups e.g. hunters) who will take the initiative to implement plans, ideally through a dedicated species recovery team/working group/task force. However, the success of a plan is far more likely to be assured where it has:

- involved key land-using stakeholders in its preparation and
- been done at appropriate stage and using suitable method (e.g. public hearing, local meetings, letter from the Commission, etc.)
- the preparation of the plan was open and accessible to the key stakeholders whose participation in the implementation was essential;
- been adopted by the relevant national authorities, especially where this is accompanied by a formal commitment to implementation, be that through taking direct government action or through support to NGOs and other experts to do the work.

Finally, it is important to recall that the international plans provide a framework for the development of national plans. While some action can be catalyzed at international level, most of the work will be needed at national and local level. Buy-in could be improved by better coordinated consultation and engagement of range state governments, representatives and stakeholders. However, it should be noted that strengthening stakeholder involvement throughout the plan development requires more time and specific efforts. It has resource implications of broadening the planning process to include stakeholders (more time, coordination's effort, money) and requires skills sets which are rarely available free of charge to conservation professionals.

3.9 Improving the consultation procedures for recovery plans

- *At what stage of preparation should plans be distributed for formal consultation?*

Formal consultation should be done at three stages (Fig. 10): First, a consultation on the Species Status Report to ensure that there is common understanding of the species conservation needs. Secondly, when the first draft is produced following the expert workshop. At that stage, the recovery plan drafts are sufficiently elaborated with the links between threats and the framework for actions already in place. Thus, reviewers and contributors can focus on the substantive parts of the plans and spend less time on the factual and descriptive sections.

Third/final consultation should be done on the second draft of the plans. It should serve the purpose of verification of the plans and as their endorsement. Following this consultation, and if relevant for the species concerned, the Commission should consult further with the CMS and AEWA Secretariats and the Bureau of the Bern Convention by submitting the final drafts of the plans for their information and consultation beyond the EU Member States. However, this assumes that due steps to improve coordination between institutions have already been made for each plan.

Approval of the recovery plan should be done after the consultation on the second draft has taken place. If no official adoption procedure (e.g. formal approval by the Member States) is envisaged, then the Commission should be responsible for approving the final versions of the documents after checking that the comments received from Member States have been duly considered.

Finally, the Commission should strive to publish the ready documents within a reasonable time, e.g. three months following the last consultation. This should help to keep the momentum.

- *What methods of consultation with Member States should be used?*

Recovery plans need to be developed 'bottom-up' and with the support of the Member States who need to be informed well in advance of proposed deadlines for any consultations, in order to plan their workload. Response to written consultations should be requested within a reasonable time. For example, a minimum of one month (preferably two or three) should be given for consultation on draft plans.

Consultations can use different methods, for example:

  - *Web-based surveys* – to collect quick feedback on specific questions that require responses of the 'multiple choice' type.
  - *Circular letters from the Commission services* – to distribute draft documents or draw attention to specific issues and events.
  - *Circa website* – to distribute large volume files, files with multiple versions, datasets, lists and meeting documentation and proceedings.
  - *Face-to-face meetings and/or telephone calls* – when discussion of particular topics requires such interaction, the plan compiler should contact directly the relevant MS official, either by e-mail, by arranging a meeting or by telephone.
  - *A web*-based discussion on specific topics is also possible method, the advantage being that it is more interactive but unlike face-to-face meetings it can be shared by more participants.

- *Presentation* at suitable meetings and conferences by the planning team has proven its worth (for status assessments and draft plans) in attracting the attention of experts.

- *How to manage conflicting views?*

Prior to drafting the first version of a new plan, the publication of a Status Report should serve as the basis for agreement on the conservation status, threats and conservation needs of the target species. The Status Report should be widely distributed, together with a call for additional information and comments. Disagreements should be resolved as early as possible and usually before a draft plan is presented to the Commission (and MS). Where unresolved matters remain, it is better for the Commission to be well aware of them in advance, rather than to have to address them post factum.

Lessons learned during the four species workshop show that early 'fact finding' meetings with a clear mandate to collect and review data and prior to official planning process has started could help raise the awareness of those involved and bring to the surface important information (e.g. rock partridge workshop). Such meetings are also helpful to avoid the impression that one of the involved sides is 'hijacking' the planning process.

Measures to moderate between stakeholders and manage eventual disagreements need to be considered. For example, the Commission may consult the Ornis SWG where experts and relevant member state representative can discuss such issues. When drafting is contracted to external organisations, they may be requested to present points of debate and open questions for discussion in front of the Ornis SWG. In that sense, the presence of BirdLife and FACE on the Committee could help to reach consensus on technical decisions.

For the purpose of more strategic issues, the Commission may refer officially to the Ornis SWG and external organisations with relevant technical expertise such as the CMS Scientific Council, AEWA Technical Committee, AEBOP[10], Bern Convention and IUCN.

Where a conflict still cannot be resolved, the European Commission should have the discretion to initiate a special investigation of the issue concerned, striving to address the disagreements. The persons/organisations involved in drafting the recovery plan should be informed of how the EC will proceed to solve the issue.

3.10 Plan monitoring, evaluation and adaptive management

- *Monitoring and evaluation*

Monitoring the implementation of the plan is an essential requirement and an on-going task of the plan Coordinator (see section 3.13). Gathering data about the progress in implementation of the plan should be organised and encouraged by the Commission primarily through providing feedback and information about the progress in particular area or Member State, so that other Member States could follow the example. One possible way to organise such a feedback system is through a table which can be available online for reference, for example table 9 (also part of the recovery plan template in Annex VII). Member States can provide and check the progress in implementation of

10 Agreement on the Conservation of Birds of Prey and Owls in the Africa-Eurasian regions

each action (e.g. by using a score system (0=action not applicable to 4=full implementation achieved). If available, each field can provide a link to additional information available online. Thus, the table will provide a simple overview of the progress in implementation that can be regularly updated and consulted.

Table 9 Summary checklist of implementation of recovery plan actions

Action\ M. State	MS1	MS2	MS3	MS4	MS5	MS6	MS7	...	MSn	Overall progress
1	0	0	...							
2	1	4								
3	2	3								
4	3	2								
5	4	1								
6	3	1								
7	2	2								
...	0	3								
N	0	4								
Overall progress										
Last updated on:	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date

By having this information available in a standardized form three levels of 'maintenance work' are required to keep plans up to date:

The first level consists of the technical process of **updating** the information contained in the plan during a regular plan review (e.g. population size and trends, level of protection of important sites) which results of external processes or of plan implementation.

The second level, **review** of the plan requires a more thorough process of analysis of the plans' overall performance measured against the current species population status. Review of the plan should be done on a regulat basis, in accordance with the shelf life of the document (i.e. 10 years). The updating and review of the documents should be done, for example by a consultant in charge (or contracted) to monitor the implementation of the plan (this function can also be performed by a designated organisation, *see section 3.13, proposed Option 3*).

The third level, **revision** of the plan could be undertaken at any time when there is enough evidence from **monitoring** of the implementation of the plan that the short and/or long-term objectives of the plan are not likely to be met. A revision can be triggered also by the accumulation of substantial new

data or in major change in circumstances of the plans implementation (e.g. change in the legal status of the species). If monitoring of the species indicates that despite of the best efforts in implementing the plan, the species continues to decline then revision of the plan may be necessary.

In many cases, the very exercise of reviewing and revising a recovery plan stimulates better implementation. **Monitoring** of the plan implementation and the response of the target population are essential for all of the above processes (see proposals for the organisation of this process in section 3.13).

- *Adaptive Management*

Adaptive management can be an extremely useful tool for moving toward recovery when uncertainty exists regarding the threats to the species, the species' life history, or the effectiveness of various management actions. Adaptive management can also be used to adjust levels of admissible use of a given population (e.g. for huntable species). Methodologically adaptive management relies on "learning by doing," and then adapting accordingly. It involves the following steps:

(1) Formulating an action (in this case a recovery or research action);
(2) Setting it up as a hypothesis to be tested;
(3) Implementing the action while monitoring the outcome;
(4) Evaluating its effectiveness or outcome using *pre-determined* criteria, and
(5) Adjusting, discontinuing, or continuing the action as necessary or, in the case of research actions, taking the next appropriate step depending on the outcome of the research.

This process provides feedback to ensure that actions are effective and minimizes surprises if additional steps become necessary because an agreed-upon objective is not reached. However, given the current experience with recovery plans and particulatly their slow process of review and updating (feedback), we do not recommend the application of adaptive management framework as a common practice at EU level. Instead, the Commission should examine further its pilot implementation in some trial adaptive management recovery plans under AEWA e.g. ISSAP for the Svalbard population of the Pink-footed Goose (Madsen et al, *in prep.*) and consider it for potential future use in different types of recovery plans.

II. Proposals for optimisation of the planning process

This section presents the proposed changes to the recovery planning process identified in the experience assessment and discussed in Section I. Principles. Figure 10 is a simplified flowchart of the process, while more details are presented in Table 10. The text below introduces the new elements.

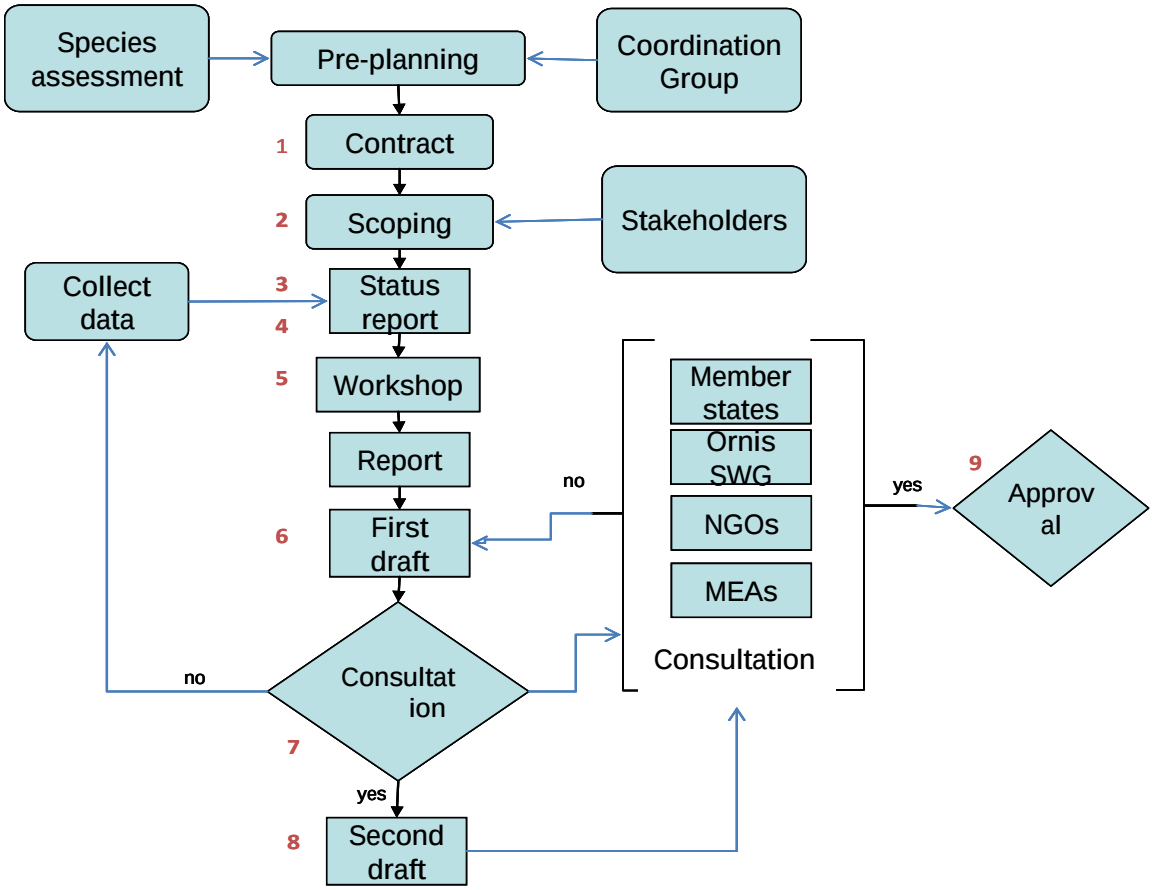


Figure 10 Proposed recovery planning procedure
(numbers correspond to the nine steps described in Table 10)

3.11 Pre-planning phase

Such a phase is very important for the organisation of the process and its comprehensiveness. It should be the responsibility of the Commission. An element of this stage covers the coordination at international level, based on the priorities identified and discussed within the proposed Coordination group (Annex VI). The pre-planning phase is important for the management of the process - hence requires project management experience. It should address, among other things, the following questionsm which should form the basis for the selection of the planning team:

- What is the desired composition of the planning team including their professional profile and the functions to be covered (e.g. working language, data gathering and administration, data availability and access, analysis of the information and its quality, facilitation of the planning process, drafting of documents, editing and technical improvement of the documents, consultation methods);
- What specific fields of expertese may be needed? (e.g. facilitators, communication experts);
- Time-table and milestones of the planning process (including optimal periods for consultations);
- Securing the resources and budget for effective planning process;

- Required coordination with external organisations;
- Initial mapping of relevant stakeholders and planned interactions with them.
- Practically these aspects should be specified in a scoping report to the Commission by the planning team.

3.12 Extended composition of the recovery planning team

As discussed in section 2.8.i designating a respected and in the same time operational and skilful plan compiler is a prerequisite for the success of the plan. In order to have the essential set of skills and competences on board, often it will be necessary to have a team (recovery planning team) in place. The size and composition of the recovery planning team should be decided during the pre-planning phase, and it should consider factors such as:

- The species' range (wide-ranging or endemic) and representation of the key range states
- Whether there are specific or controversial management issues involved
- The scope of the plan (single species, multi- species, ecosystem focus) and the required matching expertise
- What kind of specific skills and experience might be needed to help the planning process?

Depending on the species and available resources, the Commission may consider different options for the establishment of the recovery team:

- Internal
- External consultant
- Delegated institution or organisation.

As discussed in sections 2.8.i and ii the composition of the planning team would have an influence on the level of trust and acceptance of the process by the stakeholders. It is advisable to search for a balanced mix of roles and functions, involving both authoritative experts and practitioners, and having in mind geographical representativeness, language and stakeholder interests. In the same time, an optimal core planning team should not exceed 3-4 personsm in order to remain operational. A clear leader with responsibilities for delivery and process moderation should be appointed.

If consultants are hired through a contractual agreement, the Commission should provide a detailed Terms of reference for the planning team, developed and tailored to the specific needs of the species in question during the pre-planning and scoping phase. It should be required that similar consierations are taken into account by the consultant as specified above.

When contracting out the planning to external consultants and organisations, the individuals engaged should be considered as independent scientists or specialists and should be chosen for their expertise. When writing the plan, they do not represent the group with which they are otherwise affiliated. A draft plan does not necessarily reflect the views or positions of the Commission or any other involved agency.

In all cases, the plan contractor submits drafts, which may be accepted in full or in part by the Commission which is under no obligation to do so.

3.13 Structured implementation arrangements

Developing a recovery plan creates momentum, which should not be lost but translated into implementation arrangements.

- *International plan Coordinator* (*Option 1*)

A good way to organise coordinated implementation effort is through an international plan Coordinator (or champion) – a person working professionally for the conservation of the species. For example, such experts may be hosted by international organisations, NGOs or by member states central, regional or local authorities with particular responsibilities for given species. It is envisaged that many of the actions identified in the plans will have to be undertaken and financed at national or local level; ideally, a budget will be available for international coordination and promotion, and to provide small grants for national and local initiatives to stimulate implementation.

- *Setting up of Species conservation team (Option 2)*

The approach taken by AEWA envisages the establishment of Species Working Groups for each SSAP, consisting of designated governmental representatives of the principal range states, as well as representatives of national expert and conservation organisations as invited to the national delegations. In addition, the chair of the working group may invite and admit international expert and conservation organisations and individual experts as observers. A part- or full-time Coordinator post is based in an organisation or institution, ideally in one of the principal range states. The operations of the Species Working Groups, including costs of its coordination are provided primarily by their members, i.e. the range states, and in some cases, if applicable, by the observers as targeted voluntary contributions to AEWA. The AEWA Secretariat seeks to outsource coordination to organisations/institutions and formalise such partnerships through Memoranda of Cooperation (MoC).

It is advisable that for recovery plans endorsed by AEWA, the EC should take part in this arrangement and participate in the work of the Species Working Group, including financially.

Regarding plans that are not part of AEWA, the Commission may want adopt a similar concept and initiate/support the establishment of Species Working Groups in the EU with the help of key stakeholder organisations.

- *Setting up of a coordination centre for multiple plans (Option 3)*

This option aims to coordinate the information flow about implementation of the plans. A coordination centre should maintain an overview of the state of play with recovery plans, follow their life cycle, initiate reviews and facilitate reporting and feedback about implementation. One possible system that could be developed by the EC has already been proposed and discussed with the Commission and the Ornis Committee under the name of SAP.Net (Ornis+ committee, 4 July 2007).

The SAP.Net could be a web-based platform similar to the UK Biodiversity Action Plan (BAP) website[11]. It could be managed by a full time officer located in a specialist organisation (e.g. BirdLife International, Wetlands International, Wetlands and Wildlife Trust, etc.) whose primary role will be to maintain a network of relevant national/regional[12] experts (focal points, or the working group members if such group exists) for each action plan species. These experts would annually review the progress on the implementation of the action plan for their species within their country/region through a simple on-line reporting system (see Table 9 for an example).

National reports would be open for comments for a certain period before the Coordinator would prepare a summary report about the implementation of a portion of the plans, which will be rotated annually. The report would be sent to the Member States, the European Commission and other relevant international conventions. Information collected through the system would also be used to update the factual part of the existing action plans, and to provide valuable input when the action plan is formally reviewed or being reported on.

Regular exchange will be in the framework of Ornis SWG, or Ornis Committee if appropriate, to reflect on the progress on the implementation of action plans. This process will be supported with the information collected through the proposed network

In addition, the SAP.Net would provide an opportunity to disseminate information about conservation and research projects, including the results of LIFE projects on the relevant species and agri-environment schemes.

- *National focal points for each plan (Option 4)*

Most of the actions in the EU recovery plans need implementation at national level that is why it is important to appoint national focal points for each plan. The focal points can be the members of the species working groups if such exist. They can be officials from the relevant authority in the Member State or their role can be delegated to an interested organisation or expert that can provide such expertise externally. The national focal points will be the primary point of contact regarding the development, review and implementation of the plans.

- *Development of national and regional recovery plans (Option 5)*

International plans provide a framework for the development of national plans. While some action can be catalysed at international level, most of the work will be needed at national and local level. That is why Member States should consider the best way of translating the contents of international plans into national and local actions according to their legal arrangements and tradition. If they opt for development of national plans, then these have to be compatible with the international plans by further specifying the identified threats and actions, as well as the recovery objectives at a national level.

- *Reporting by Member States on recovery plans (Option 6)*

Under the newly adopted reporting framework for article 12 of the Birds Directive Section 6 deals with "Progress in work related to international Species Action Plans (SAPs), Management Plans (MPs) and Brief Management Statements (BMSs)"

[11] See examples for various bird species at http://www.ukbap.org.uk/SpeciesGroup.aspx?ID=7.
[12] In the case of federal states such as Belgium, Germany, Spain, UK.

This section is designed to capture information about Member States' work on some of the EU's most threatened bird species and for which Species Action Plans (SAPs) or Brief Management Statements (BMSs) have been developed, as well as a suite of huntable species considered to be in a poor condition in the EU and for which Management Plans (MPs) have been prepared. The reporting also includes work done within the framework of plans adopted by other international organisations to which the EU is a signatory part, such as the Bern Convention and the AEWA.

Significant EU resources have been spent on the conservation of many of these species since the 1990s (e.g. through LIFE projects), so Member States are requested to summarise what they have achieved at national level to implement the plans and to improve the status of these species.

For each species for which a recovery plan has been developed, this section should be completed by all Member States for which any measures have been proposed in the plans. The plan coordinator should be in a position to provide such information.

Using the information collected it will be possible to compile the overview of implementation presented in table 9.

- *Better targeting of the action plans towards available resources and access to funding for implementation (Option 7)*
    - Sector relevant action packages: implementation (especially by other sectors) can be facilitated if the information each sector needs is packaged in a relevant form. For example, at the level of the Commission, DG Environment can prepare, as part of the programming exercise, short summaries for each main land-use sector of the measures and safeguards needed, as identified in the plans.
    - At the national level, the national focal points can develop jointly with the relevant authority (e.g. the Ornis committee member) similar briefings to relevant sector planners.
    - Indication of possible EU funding instruments: plans should contain at least an estimate of the magnitude of costs of actions, as well as an indication of the possible funding source.
    - Relevance to the Prioritized Action Frameworks: the information about the species threats and conservation management needs contained in the plans has direct relevance to the programmes of conservation action at the site level for the Natura 2000 network. Thus species recovery plans should be used as information source for the development of Nature management plans and programmes and should feed into the Priority Action Frameworks.

Table 10 summarises all the proposals into a step by step process shared between the key actors. In addition, Annex VII contains the specific changes that need to be made to the AEWA Single Species Action Plan format to accommodate those proposals.

Table 10 Proposed optimised recovery planning process

Steps	**Planning team**	**European Commission**	**MS Ornis C-tee member**	**MS Experts**	**Stakeholder representatives and organisations at EU level**
Pre-planning		Coordination with international organisations Decides for which species plans should be developed and what type of plan. Allocates budget. Prepares Terms of Reference for the planning team	Take part in prioritisation discussions and decision. Inform colleagues. Allocates time for engagement in the process.	Receive notice of intention to initiate planning process. Give opinion on species choice and proposed process.	Receive notice of intention to initiate planning process. Give opinion on species choice and proposed process.
Step 1: Start-up phase	Engages members of the planning team in function of ToR Develops a scoping report and designs the planning process according to the specific needs.	Contracts plan compiler, following a selection procedure (e.g. tender) Explains expectations and requirements in accordance to ToR			

Steps	Planning team	European Commission	MS Ornis C-tee member	MS Experts	Stakeholder representatives and organisations at EU level
	Identifies members of the planning team and their roles.				
Step 2: Define planning ToR	Provides details on planning team, compiles list of contributors, stakeholders and MS contacts to be consulted, dates of workshops, etc.	Agrees with the planning team the process, time-table and other requirements	Receive information about planning process and disseminate at national level	Receive information about planning process	Receive information about planning process
Step 3: Prepare draft status report	Collate data on population estimates, trends, life history, ecology, threats, legal status, conservation actions, policies, key areas, and protection status. If information is found insufficient, organises initial 'fact finding'	Disseminate information Comment on status report	(Provide information as requested) Comment on status report	Provide information as requested Comment on status report	Provide information as requested Comment on status report

Steps	Planning team	European Commission	MS Ornis C-tee member	MS Experts	Stakeholder representatives and organisations at EU level
	actions (e.g. meeting, survey, etc.)				
Step 4: Publication and dissemination of draft status report	Ensure wide dissemination of status report, including consultation with MS. Prepare expert workshop.	Publish report internally (e.g. Circa)	Receive information and invitation for expert workshop when relevant.	Receive invitations for expert workshop. Prepare for participation.	Appoint representatives to take part in workshops and consultations.
Step 5: Planning workshop	Host and facilitate planning workshop to cover as minimum review of status report and gaps, detailed threats analysis, recovery strategy, objectives, key actions and responsibilities.	Take part in workshop if relevant.	Take part in workshop if relevant	Participate in workshop; provide national expertise including knowledge on stakeholders' attitudes and implementation challenges.	Take part in workshop if relevant.
Step 6: First draft plan prepared	Compile first draft of the recovery plan and circulate for comments to EC, MS, experts and international	Facilitate consultation with MS; circulate draft and template for comments. Review draft document and	Review draft document and carry out internal consultations within their country services.	Review draft document and facilitate consultations with experts, technical staff and NGOs + national	Review draft and disseminate as appropriate

Steps	Planning team	European Commission	MS Ornis C-tee member	MS Experts	Stakeholder representatives and organisations at EU level
	stakeholders.	provide comments.		stakeholders.	
Step 7: Follow up consultation on first draft	Receive and incorporate comments from EC, MS, experts and stakeholders. Follow up with bilateral discussions if needed.	Provide comments from MS	Provide further clarifications if needed.	Facilitate further consultation with experts and provide clarifications if needed.	
Step 8: Second draft plan prepared For international plans:	Based on comments and further analysis, prepare second draft.	Receive second draft and circulate for formal consultation with MS. Submit plan to AEWA TC, Bern Convention, etc.	Review and provide comments on second draft.	Review and provide final comments through MS Ornis member.	Review draft and disseminate as appropriate
Step 9: Finalisation and approval	Incorporate final changes and submit to EC for approval.	Approve and publish plans.			

Part 4 - Conclusions

Following from nearly 20 years of experience with EU species action plans and management plans and their evaluation, one can summarise the purpose of EU recovery plans as:

- To raise awareness of the concerned actors on the needs for conservation action in the EU.
- To identify the threats that influence the conservation status of the species and evaluate their impact in order to develop prioritized conservation actions.
- Support the environmental authorities in the Member States in their efforts to implement the required requisite measures for bird conservation under the Birds Directive.
- To inform the elaboration of national regional and local recovery plans for implementation by national and local actors.
- To provide a framework in which local actions would contribute towards goals identified as priority at biogeographic scale.
- To coordinate and make compatible the planning and implementation of actions of national and regional conservation agencies, private conservation organisations and NGOs to work efficiently and save resources.
- To identify and formulate options for integration of biodiversity conservation into local, national and EU level policy instruments and sectors in view of their full implementation and maximise effectiveness.

Species Recovery plans do not engage Member States beyond their existing legal obligations under the Birds Directive. Their function is to serve as management and reference tools to the Member State authorities in selecting, planning and implementing priority actions for the conservation of birds. The plans also provide guidance and stimulate the implementation of conservation measures (e.g. projects) by other interested stakeholders such as NGOs and local authorities. However, their primary target audience are the Member States authorities responsible for biodiversity conservation.

Based on the current experience and recommendations by Member States and stakeholders a review of the strengths and weaknesses of the process and procedures for the plans was drawn up. By formulating and discussing a set of desired principles and characteristics of the plans a number of proposals were made to improve the process and the plan format.

As resources and capacities available for conservation are limited, decision-makers need to prioritise what actions are most needed and likely to succeed at any given moment. Therefore a need of a system that is flexible and in the same time comprehensive for prioritisation of species for conservation actions is needed. A new method is proposed, which is systematic, incorporates clear, repeatable and scalable methods. It was applied to identify immediate priorities (by 2014) for

recovery plans and LIFE funding. Instead of proposing a partial list of species for new conservation status assessments and eventually for new plans, recommendation to repeat the prioritisation in 2015 using the latest available data is made. Recommendations for new plans and for revision of existing plans is drawn from the list of species identified using the new method and the current knowledge of conservation status (including developed species status reports under this contract).

A recommendation is made to repeat the prioritisation following the completion of the 2014 reporting exercise for birds, and the publication of the next comprehensive status assessment of European birds.

Options for a more flexible approach regarding the scope of the plans were assessed (single species, flagship species, grouped by habitat, grouped by threat) and recommendations were made on how to approach the proposed list of priority species.

Since the conservation of birds and especially migratory species is dependent on international cooperation the opinion of the relevant international organisations was taken into account and a draft Terms of Reference was prepared for a European Coordination Group for Bird Species Conservation Planning, in consultation with the most important actors. Annual meetings of this group could greatly facilitate the synergies between these organisations.

Further, following from the adopted CBD Aichi targets and the EU 2020 Biodiversity Strategy, recommendations are made how to strengthen further the ecosystem approach and flyway conservation through the recovery plans adopted by the EU. The restoration of functional and connected habitats (under Target 2) could also support the recovery of threatened speciesm whose populations are now isolated into non-viable population fragments.

Special attention receive the need to implement a partnership approach in the development and implementation of recovery plans. Recommendations are made on how to increase the transparency and participation of stakeholders into the planning process and how to improve consultation procedures. Practical experience in that direction was reviewed including by running four species status assessments fpr species with limited knowledge and understanding within the stakeholder groups involved. The lessons learned from this exercise were integrated into the analysis and following recommendations.

As recovery plans should be based on sound scientific grounds and robust logic, review of the available best practive was made and recommendations are drawn regarding the use of quantitative methods of developing SMART objectives and targets. Proposals are made on introducing of additional criteria and characteristics of the recovery objectives, which aim to make them unambiguous and monitorable. It is expected that using such methods and approach would also strengthen the acceptance and support the implementation of the recovery plans by stakeholders.

Recovery plans are living documents and they should be able to take into account changes in the status of bird populationsm including as a result of the implementation of recovery actions. Thus, the need to have a flexible and ‘lighweight’ monitoring system for keeping the plans up to date was discussed and recommendations are madem including of different options for its operational arrangements. It is up to the Commission to chose the most appropriate option (or combination), but having a system in place should be considered a priority. Good opportunity for using the momentum

of the new reporting system under Art. 12 of the Birds Directive should not be lost and relevant decisions should be considered in due course. The adoption of an adaptive management approach to (some) recovery plans required further evaluation and trial before it can be recommended for the EU.

Environmental authorities and stakeholders cannot achieve the goals of the plans alone, they must promote their integration. International recovery plans can be used to inform development and biodiversity 'proofing' of sectoral policies at EU and MS level. They could be used directly as a source of information or indirectly for the development of national plans and programmes. This has been identified as an opportunity but also as a weak point in the current experience with implementation of plans during this assessment and in previous reviews of the implementation of individual plans.

Resulting from this review a number of proposals were made for the better organisation of the planning process and for clarifying the roles of the actors involved in it. Several options are proposed on possible ways to support the implementation of the plans. These are based on realistic and (at least partly) tested methods that have proven their worth at different levels (e.g. in individual member states or organisations). The general direction of these recommendations is towards opening the recovery planning process to the stakeholders and actors who have demonstrated interests in the recovery work for the species. It is believed that such an approach would increase the efficiency and maximise motivation for implementation.

The European Commission and Member States have committed to achieve far-reaching objective "*50% more species assessments under the Birds Directive show a secure or improved status".* This target requires actions at multiple levels. The recovery of threatened species is just one of them, and traditionally it has attracted most attention and resources. However not letting other species that are still common, but already seriously declining is an equally important and challenging task. Effective biodiversity conservation requires a mix of approaches – responsive, to conserve and recover and proactive to prevent and manage sustainably. The proposed methodology opens up the traditional conservation approach to such opportunities.

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ANNEXES

Annex I – List of International Bird Species Recovery Plans in the EU

1.1 *Part A - List of recovery plans approved by the European Commission (as of January 2012). EU Management Plans are indicated with "m" in column "EC".*

Species	Red List (2011)	SPEC category	European Threat Status	Birds Directive Annex	Notes	EC	Bern	CMS	AEWA	Year of production	Year(s) of review	Year of latest revision
Pterodroma feae Fea's Petrel	NT	SPEC 1	VU	I		*	*			1996	2001, 2004, 2010	
Pterodroma madeira Zino's Petrel	EN	SPEC 1	(CR)	I		*	*			1996	2001, 2004, 2010	
Puffinus mauretanicus Balearic Shearwater	CR	SPEC 1	CR	I		*	*			2000	2010	2010*
Phalacrocorax aristotelis European Shag		Non-SPEC[E]	(S)	I	* *P. a. desmarestii* only; ** all others	*	*			2000		
Phalacrocorax pygmeus Pygmy Cormorant		SPEC 1	S	I		*	*	*		1996	2001, 2004, 2007	
Pelecanus crispus Dalmatian Pelican	VU	SPEC 1	R	I		*	*	*		1996	2001, 2004, 2007, 2010	
Botaurus stellaris Great Bittern		SPEC 3	H	I	* *B. s. stellaris* only	*				1996		
Anser erythropus Lesser White-fronted Goose	VU	SPEC 1	EN	I		*	*	*	*	1996	2001, 2004, 2007	2008
Branta ruficollis Red-breasted Goose	EN	SPEC 1	VU	I		*	*	*		1996	2004, 2007, 2009	2010
Anas acuta Northern Pintail		SPEC 3	(D)	II/A		m				2007		
Marmaronetta angustirostris Marbled Teal	VU	SPEC 1	(VU)	I	W Med population only	*	*	*		1996	2004, 2007, 2008	2008
Netta rufina Red-crested Pochard		Non-SPEC	(S)	II/B		m				2007		
Aythya nyroca Ferruginous Duck	NT	SPEC 1	(VU)	I		*	*	*	*	1996	2007	2006
Aythya marila Greater Scaup		SPEC 3W	EN			m				2009		
Polysticta stelleri Steller's Eider	VU	SPEC 3W	L	I		*	*	*		1999		
Melanitta fusca White-winged Scoter		SPEC 3	(D)	II/B		m				2007		

Species	Red List (2011)	SPEC category	European Threat Status	Birds Directive Annex	Notes	EC	Bern	CMS	AEWA	Year of production	Year(s) of review	Year of latest revision
Oxyura leucocephala White-headed Duck	EN	SPEC 1	VU	I		*	*	*	*	1996	2004, 2007	2006
Milvus milvus Red Kite	NT	SPEC 2	D	I		*				2010		
Gypaetus barbatus Lammergeier		SPEC 3	(VU)	I		*	*			1999	2010	
Neophron percnopterus Egyptian Vulture	EN	SPEC 3	EN	I		*				2008		
Aegypius monachus Cinereous Vulture	NT	SPEC 1	R	I		*	*	*		1996	2001, 2004, 2010	
Accipiter gentilis Northern Goshawk		Non-SPEC	S	I	* *A. g. arrigonii* only	*	*			1996		
Accipiter nisus Eurasian Sparrowhawk		Non-SPEC	S	I	* *A. n. granti* only	*	*			1996		
Aquila pomarina Lesser Spotted Eagle		SPEC 2	(D)	I		*	*			1999	2010	
Aquila clanga Greater Spotted Eagle	VU	SPEC 1	EN	I		*	*	*		1999		
Aquila heliaca Imperial Eagle	VU	SPEC 1	R	I		*	*	*		1996	2004, 2010	
Aquila adalberti Spanish Imperial Eagle	VU	SPEC 1	(EN)	I	revised	*	*	*		1996	2001, 2004, 2008	2008
Hieraaetus fasciatus Bonelli's Eagle		SPEC 3	EN	I		*	*			1999	2010	
Falco naumanni Lesser Kestrel		SPEC 1	H	I		*	*	*		1996	2001, 2004, 2010	2010*
Falco vespertinus Red-footed Falcon	NT	SPEC 3	(VU)	I		*				2009		
Falco eleonorae Eleonora's Falcon		SPEC 2	D	I		*	*			2000	2010	
Falco biarmicus Lanner Falcon		SPEC 3	VU	I		*	*			2000		
Falco cherrug Saker Falcon	EN	SPEC 1	EN	I		*	*			2006		
Falco rusticolus Gyrfalcon		SPEC 3	(R)	I		*	*			2000		
Alectoris graeca Rock Partridge		SPEC 2	(D)	I	* *A. g. saxatilis* + *A. g. whitakeri* only; ** all others; *** *A. g. whitakeri* only	*	*			2000		
Perdix perdix Grey Partridge		SPEC 3	VU	I	* *P .p. italica* + *P. p. hispaniensis* only; ** all others; *** *P .p. italica* only	*	*			2000		
Coturnix coturnix Common Quail		SPEC 3	(H)	II/A	* *C. c. coturnix* only	m				2009		
Crex crex Corncrake	NT	SPEC 1	H	I	revised and upgraded to AEWA	*	*	*	*	1996	2001, 2004, 2007	2006

Species	Red List (2011)	SPEC category	European Threat Status	Birds Directive Annex	Notes	EC	Bern	CMS	AEWA	Year of production	Year(s) of review	Year of latest revision
Porphyrio porphyrio Purple Swamphen		SPEC 3	L	I		*	*			2000		
Fulica cristata Red-knobbed Coot		SPEC 3	CR	I		*	*			2000		
Tetrax tetrax Little Bustard	NT	SPEC 1	VU	I		*	*			1999	2006, 2010	2010*
Chlamydotis undulata Houbara Bustard	VU	SPEC 1	(VU)	I	* north-west African populations only; ** Asian populations only	*	*			1996	2004, 2006, 2008	2010
Otis tarda Great Bustard	VU	SPEC 1	VU	I	* Middle European populations only, revised	*	*	*		1996	2004, 2006, 2009	2010
Cursorius cursor Cream-coloured Courser		SPEC 3	(EN)	I		*	*			2000		
Pluvialis apricaria Eurasian Golden-plover		Non-SPEC[E]	(S)	II/B		m				2009		
Vanellus vanellus Northern Lapwing		SPEC 2	VU	II/B		m				2009		
Gallinago media Great Snipe	NT	SPEC 1	D	I		*	*		*	2004	2007	
Limosa limosa Black-tailed Godwit	NT	SPEC 2	VU	I, II/B	EU Species management plan	m			*	2007		
Numenius tenuirostris Slender-billed Curlew	CR	SPEC 1	NE	I		*	*	*		1996	2004, 2007	
Numenius arquata Eurasian Curlew	NT	SPEC 2	D	II/B		m				2007		
Tringa totanus Common Redshank		SPEC 2	D	II/B		m				2009		
Larus audouinii Audouin's Gull	NT	SPEC 1	L	I		*	*	*		1996	2004, 2007, 2010	
Larus canus Mew Gull		SPEC 2	(H)	II/B		m				2009		
Sterna dougallii Roseate Tern		SPEC 3	R			*	*			2000		
Columba trocaz Madeira Laurel Pigeon	NT	SPEC 1	(R)	I		*	*			1996	2001, 2004, 2010	
Columba bollii Dark-tailed Laurel Pigeon	NT	SPEC 1	(R)	I		*	*			1996	2001, 2004, 2010	
Columba junoniae White-tailed Laurel Pigeon	EN	SPEC 1	EN	I		*	*			1996	2001, 2004, 2010	
Streptopelia turtur European Turtle-dove		SPEC 3	D	II/A	* *S. t. turtur* only	m				2007		
Coracias garrulus European Roller	NT	SPEC 2	VU	I		*				2008		
Dendrocopos major Great Spotted Woodpecker		Non-SPEC	S	I	* *D. m. canariensis* + *D. m. thanneri* only	*	*			2000		

Species	Red List (2011)	SPEC category	European Threat Status	Birds Directive Annex	Notes	EC	Bern	CMS	AEWA	Year of production	Year(s) of review	Year of latest revision
Chersophilus duponti Dupont's Lark	NT	SPEC 3	(H)	I		*				2008		
Alauda arvensis Eurasian Skylark		SPEC 3	(H)	II/B		m				2007		
Acrocephalus paludicola Aquatic Warbler	VU	SPEC 1	(VU)	I	revised	*		*		1996	2004, 2008	2008
Ficedula semitorquata Semicollared Flycatcher	NT	SPEC 2	D	I		*				2010		
Fringilla teydea Blue Chaffinch	NT	SPEC 1	R	I		*	*			1996	2001, 2004, 2010	
Loxia scotica Scottish Crossbill		SPEC 1	DD	I		*	*			2000		
Pyrrhula murina Azores Bullfinch	CR	SPEC 1	(EN)	I		*	*			1996	2001, 2004, 2009	2010

1.2 Part B - Recommendations of the Standing Committee of the Berne Convention endorsing Species Action Plans for birds

Recommendation No. 121 (2006) of the Standing Committee on the implementation of six new action plans for most threatened birds in the Convention's area

1. Saker Falcon (*Falco cherrug)*
2. Dark bellied Brent Goose (*Branta bernicla hrota)*
3. Northern Bald Ibis (*Geronticus eremita)*
4. Corncrake (*Crex crex)*
5. White-headed Duck *(Oxyura leucocephala)*
6. Ferruginous Duck (*Aythya nyroca)*

Recommendation No. 103 (2003) on five new Action Plans for most threatened birds in the Convention's area:

7. Pallid Harrier (*Circus macrourus)*
8. Black-winged Pratincole (*Glareola nordmanni)*
9. Sociable Lapwing (*Vanellus (Chettusia) gregaria)*
10. Great Snipe (*Gallinago media)*
11. Cinereous Bunting (*Emberiza cineracea)*

Recommendation No. 92 (2002) on sixteen new Action Plans for most threatened birds in the Convention's area

12. Lanner falcon (*Falco biarmicus*)
13. Eleonora's falcon (*Falco eleonorae)*
14. Roseate tern (*Sterna dougallii*)
15. Gyrfalcon (*Falco rusticolus*)
16. Balearic shearwater (*Puffinus mauretanicus*)
17. Crested coot (*Fulica cristata*)
18. Corso-Sardinian goshawk (*Accipiter gentilis arrigonii*)
19. Macaronesian sparrowhawk (*Accipiter nisus granti*)
20. Cream-coloured courser (*Cursorius cursor*)
21. Gran Canaria great spotted woodpecker (*Dendrocopos major thanneri*)
22. Italian grey partridge (*Perdix perdix italica*)
23. Scottish crossbill (*Loxia scotica*)
24. Sicilian rock partridge (*Alectoris graeca whitakeri*)
25. Tenerife great spotted woodpecker (*Dendrocopos major canariensis*)
26. Canary Islands stonechat (*Saxicola dacotiae*)
27. White-tailed Sea Eagle (*Haliaeetus albicilla*)

Recommendation No. 88 (2001) on the implementation of five new Action Plans for globally threatened birds in Europe

28. Bearded Vulture (*Gypaetus barbatus)*
29. Bonelli's Eagle (*Hieraaetus fasciatus)*
30. Little Bustard (*Tetrax tetrax)*
31. Mediterranean Shag (*Phalacrocorax aristotelis desmarestii)*
32. Purple Swamphen (*Porphyrio porphyrio)*

Recommendation No. 75 (1999) on the implementation of new action plans for globally threatened birds in Europe

33. Ferruginous Duck (*Aythya nyroca)*
34. Steller's Eider (*Polysticta stelleri)*
35. Spotted Eagle (*Aquila clanga)*
36. Lesser Spotted Eagle (*Aquila pomarina)*

Recommendation No. 48 (1996) on the conservation of European globally threatened birds

37. Azores Bullfinch (*Pyrrhula murina)*
38. Ligh-tailed Laurel Pigeon (*Columba junoniae)*
39. Madeira Petrel (*Pterodroma madeira)*
40. Blue Chaffinch (*Fringilla teydea)*
41. Fea's Petrel (*Pterodroma feae*)
42. Houbara Bustard (*Chlamydotis undulata)*
43. Madeira Laurel Pigeon (*Columba trocaz*)
44. Spanish Imperial Eagle (*Aquila adalberti)*
45. Dark-tailed Laurel Pigeon (*Columba bolli)*
46. Slender-billed Curlew (*Numenius tenuirostris*)
47. Marbled Teal (*Marmaronetta angustirostris)*
48. Dalmatian Pelican (*Pelecanus crispus*)
49. Red-breasted Goose (*Branta ruficollis)*
50. Pygmy Cormorant (*Phalacrocorax pygmaeus)*
51. Lesser White-fronted Goose (*Anser erythropus)*
52. White-headed Duck (*Oxyura leucocephala)*
53. Eastern Imperial Eagle (*Aquila heliaca*)
54. Audouin's Gull (*Larus audouini)*
55. Cinereous Vulture (*Aegypius monachus*)
56. Aquatic Warbler (*Acrocephalus paludicola)*
57. Lesser Kestrel (*Falco naumanni)*
58. Corncrake (*Crex crex)*
59. Great Bustard (*Otis tarda)*

Recommendations of the Standing Committee of the Berne Convention on the implementation Species Action Plans for birds

- Recommendation No. 93 (2002) on the further implementation of Action Plans for globally threatened birds and on other issues of interest for bird conservation in the Convention's range
- Recommendation No. 62 (1997) on the conservation of regionally threatened birds in the Macaronesian and Mediterranean regions
- Recommendation No. 61(1997) on the conservation of the White-headed Duck (*Oxyura leucocephala*)
- Recommendation No. 60 (1997) on the implementation of the actions plans for globally threatened birds in Europe

Annex II –Member State Experience with Recovery Plans (Survey report)

CONSULTATION QUESTIONNAIRE

The use by EU Member States of bird Species Action Plans and Management Plans for huntable species considered to have an unfavourable conservation status, developed by the European Commission

I. Objectives:

1. To learn about the experience of Member States with the Species Action Plans (SAPs) for threatened birds and Management Plans (MPs) for huntable species considered to have an unfavourable conservation status, produced by the European Commission.
2. To evaluate the strengths and weaknesses of these documents, the methods of their development and approval and their implementation at international, national and local level. To extract recommendations for improvement of these processes.
3. To collect information on:
    a. What type of national or regional species action plans are elaborated by the Member States, and if relevant, for what species.
    b. What other policies and tools are used by Member States to support the conservation of threatened (bird) species.

II. Issues to investigate:

1. The levels of awareness about the existence of EU SAPs and MPs and their use by Member States.
2. Are EU SAPs and MPs useful to the Member States, in relation to:
    a. the planning and implementation of *specific conservation measures* for threatened bird species at national level (for example through development of national and local species action plans or similar conservation documents);
    b. informing, motivating and involving different stakeholders in their implementation.

3. Quality of the EU SAPs and MPs documents according to the Member States as regards their applicability at national and sub-national level.
4. Experience with the development, adoption and consultation of EU SAPs and MPs by the European Commission and how the process can be improved.
5. What is the experience with and the potential for integration of the conservation measures outlined in SAPs and MPs into the sectoral policies and plans at national and regional level.
6. What specific experience do Member States have with the implementation of MPs for huntable species, including for species which may not be huntable on their territory.

III. Respondents:

The questionnaire for the survey is appended at the end of this document. The questionnaire was distributed by e-mail in English and Spanish language to the Ornis Committee members of the 27 Member States. (list appended at the end of the document). Responses were received between 5 September and 15 December 2011 from 15 Member States, as follows:

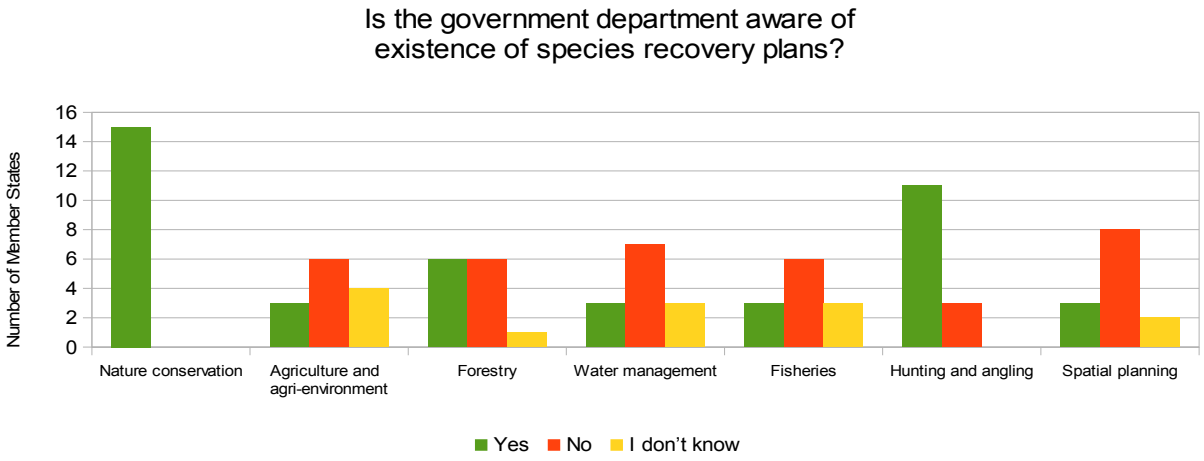
Code	M State	Contact name	E-mail address	Date
BE	Belgium	Sarah Roggeman	sarah.roggeman@lne.vlaanderen.be	8/11/2011
CY	Cyprus	Panicos Panayides	panayides.gf@cytanet.com.cy	5/09/2011
CZ	Czech Republic	Eva Vojtechovska	eva.vojtechovska@nature.cz	15/11/2011
DK	Denmark	Erik Buchwald	ecb@nst.dk	12/09/2011
ES	Spain	Luis Mariano González	LMGonzales@mma.es	4/10/2011
FI	Finland	Heikki Korpelainen	heikki.korpelainen@ymparisto.fi	22/09/2011
FR	France	Marianne Courouble	marianne.courouble@developpement-durable.gouv.fr	15/12/2011
HU	Hungary	Andras Schmidt	Andras.Schmidt@vm.gov.hu	19/09/2011

LT	Lithuania	Dziugas Anuskevicius	d.anuskevicius@am.lt	22/09/2011
NL	Netherlands	Gerard van Dijk	g.van.dijk@minlnv.nl	28/09/2011
PL	Poland	Jakub Milczarek	jakub.milczarek@gdos.gov.pl	30/09/2011
SE	Sweden	Krister Mild	krister.mild@naturvardsverket.se	13/09/2011
SI	Slovenia	Andrej Bibic	Andrej.Bibic@gov.si	15/09/2011
SK	Slovakia	Jana Durkosova	jana.durkosova@enviro.gov.sk	12/10/2011
UK	United Kingdom	Elaine Kendall	Elaine.Kendall@defra.gsi.gov.uk	12/09/2011

IV. Results

Questions A

A. Awareness about Species Action Plans (SAPs) for threatened birds and Management Plans (MPs) for huntable bird species considered to have unfavourable status.			
	Yes	No	I don't know
1. Are you aware of the existence of EU SAPs and MPs for birds applicable to your country? (yes/no)	15		
2. Was your member of the ORNIS Committee involved in the adoption of any such plans? (yes/no)	14	1	
3. If yes for which species?[1]			
4. According to your knowledge, is any of the following institutions in your country familiar with the existence of species action plans for birds (either international or national):			
	Yes	No	I don't know
Governmental services responsible for:			
Nature conservation	15		
Agriculture and agri-environment	3	6	4
Forestry	6	6	1
Water management	3	7	3
Fisheries	3	6	3
Hunting and angling	11	3	
Spatial planning	3	8	2
NGOs, professional and expert organisations			
Nature conservation NGOs	14		
Agricultural sector	3	7	3
Forestry sector	3	1	4
Fisheries sector	2	7	4
Hunting and angling sector	6	4	3
Land owners organisations	3	5	5



Comments A

(Please note the number following the country code signifies the number of the question to which the comment refers. If no number is provided that the comment applies to the entire section.)

UK3.Red Kite, Great Bustard, Bittern, etc

UK7.Ministry of Defence, Dept. of Energy and Climate change, Dept. of Communities and local governance

UK:Stakeholder involvement work is done extensively by Defra. For example, through the promotion of England's Biodiversity Strategy recently published. The England Biodiversity Group (EBD) is the forum that brings to the table all relevant stakeholder organisations.

LT3.Aquatic Warbler, Corncrake, Lesser Spotted Eagle, Golden Plover, Common Gull

CY3. Turtle Dove, Quail

CY Maybe it will good to inform them through the relevant national agencies. A request from the EC should be sent to the national authorities to do this.

SL1: yes SAPs (esp. Species occuring in Slovenia); MPs – SI knows they exist, but has very few huntable species for which MPs apply

SL3: Corncrake, Shag, Roller and others

SL4: Yes for the N2K(the Slovenian National Natura 2000 Management Programme) but not for the SAP

FI3: Lesser White fronted Goose, Gyrfalcon, MPs species are present in Finland but they are not hunted.

FI: Generally not well known in Finland, even among the relevant governmental servies. National plans are better known.

ES3:*Aegypius monachus, Aquila adalberti, Chersophilus duponti, Chlamydotis undulada fuerteventurae, Columba Boli, Columba junionae, Cursorius cursor, Dendrocopos major thanneri, D. m. canariensis, Falco eleonorae, Falco naumanni, Fringilla teydea, Fulica cristata, Gypaetus barbatus, Hieraeetus fasciatus, Larus audounii, Marmaronetta angustirostris, Milvus milvus, Neophron percnopterus, Otis tarda, Oxyura leucocephala, Phalacrocorax aristotelis desmarestii, Porphyrio porphyrio, Puffinus puffinus mauretanicus, Tetrax tetrax*

PT3:All species occurring in PT

PT:Answering NO above means that there was no direct involvement of these sectors in the Action Plan elaboration or implementation. No formal contact was established. Doesn't mean that particular people in these sectors are not aware of such plans. Not all "Scientific research institutions" and "Private companies in the relevant field" are aware of SAP.

HU3: *Branta ruficollis, Coracias garrulus, Falco vespertinus, Milvus milvus, Otis tarda, Limosa limosa, Melanitta fusca, Numenius arquata, Anas acuta, Netta rufina, Alauda arvensis, Streptopelia turtur, Aythya marila, Vanellus vanellus, Coturnix coturnix*

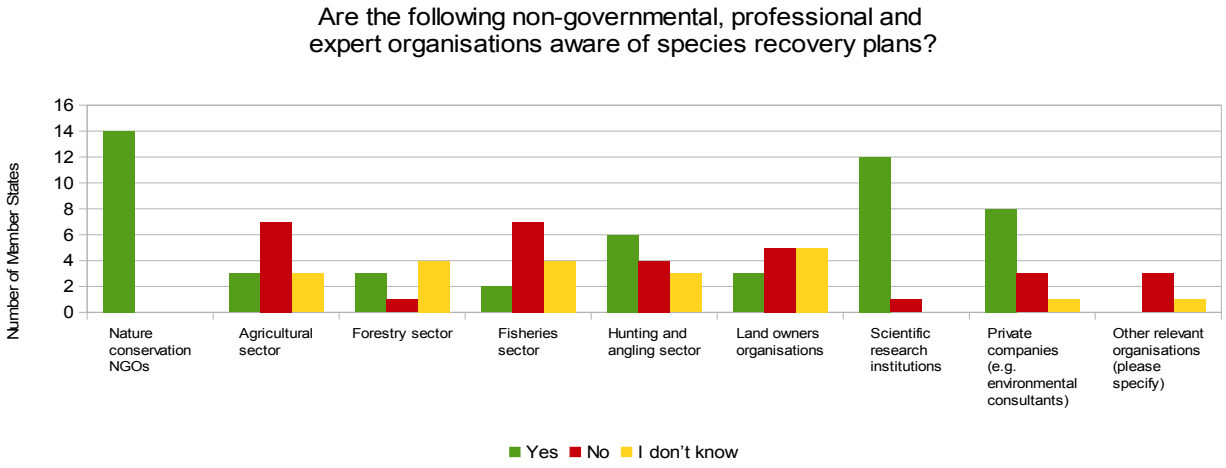
PL1: For example SAPs for Red Kite, Lesser Spotted Eagle, European Roller

PL3:I was involved in adoption of last set of SAPs (inter alia for Red Kite) I submitted Polish comments for Red Kite. Most likely Polish ORNIS Members had been also involved in previous SAPs and MPs.

PL4:Some experts from forestry services has knowledge about EU SAPs and MPs, but I wouldn't describe this knowledge as widespread. The same regards forestry sector and private companies in relevant field (e.g. environmental consultants)

SK2: there is a procedure, that ORNIS member sends information to the agency of the Ministry (State Nature Conservancy of the Slovak Republic) informing about draft management/action plans developed by the European Commission (its partners) and asking for possible comments from the expert point of view.

SK3: Information from the ORNIS member goes for any species – usually in the official way (by the letter and email), in case of lacking time and/or species not occurring in Slovakia sometimes only electronically. This procedure is cca 3 years (it depends on the ORNIS member).



Questions B

B. How useful and effective are the EU SAPs and MPs as tools for planning and implementation of conservation actions by the relevant services in your country.	Yes	No	I don't know	
Questions B				
1. Do you find EU SAPs and MPs generally useful? (yes/no)	14			
2. Do you find the selection of bird species covered by EU SAPs or MPs appropriate? (yes/no)	12	2		FR - no for MPs
3. Do you find the information provided in the EU SAPs and MPs documents:				
a. Helpful to understand the threats and conservation needs of the species (yes/no)	14			
b. Sufficiently clear, accurate and specific to be translated into practical actions (yes/no)	12	3		FR - no for MPs
c. Easy to communicate to other relevant services and stakeholders (yes/no)	8	6	1	FR - no for MPs
d. Helpful to inform the elaboration of Management Plans for Natura 2000 sites (yes/no)	11	3		
e. Helpful to elaborate your own national or regional plans for the conservation of threatened species or similar documents (yes/no)	13		1	
f. In accordance with the main threats that the species are facing in your country? (yes/no)	12	1	1	
g. Do you find the information about the location and importance of key sites for the conservation of the target species included in SAPs/MPs accurate and sufficient for your needs? (yes/no)	10	2	2	
4. According to your experience, how would you rate the quality of the documents:	**Poor**	**Good**	**Very good**	
a. SAPs:		8	3	
b. MPs:		9	2	

Comments B

UK2.Could be wider (more species)

UK3e. For example - the Bittern - has been quite successfully implemented in England. Another is the White headed Duck plan - in the case of the Rudy Duck eradication - it was used to justify and prioritise the measures.

UK 4a.some of them are quite old, that is why not 'very good

UK4b.most are newer

UK: The White headed Duck has been particularly useful for Defra's work on the Ruddy Duck - to show and explain to the public why action was needed. Also useful in our MS to MS dialogue/cooperation.

LT2.more or less; because only 8 occur in LT; Lithuanian experts think that gaps are for example: Black Stork, Capercaillie, *Gallinago media*, Golden Plover, Ruff, Osprey, *Tringa glareola, Sterna albifrons*, White-tailed Eagle (National Action Plans under prep. expected by end of 2011, result of Tender won by the Institute of Ecology) In prep: Aquatic Warbler, Lesser Spotted Eagle

LT3c maybe not very easy; it is European (less specific to local stakeholders)

LT3e (no national action plans developed fpr the species with EU plans);

LT3g More or less accurate; site descriptions are not provided; level is too strategic.

LT No MPs for huntable species in LT yet. Most of the EU MPs are not huntable in LT.

DK: They are not the most suitable tool for our main way of working - which is through site management plans and the species protection legislation. Sites of the N2K network have objectives species by species (Annex I). So the SAP species are covered, also for the migratory (Art 4.2).

CY3b: clear, but sometimes not so specific on MS particularities. They are sometimes too general, not country specific

CY3d: yes, it started for some SCIs. Planning to start end of 2011 for SPAs

CY3e: example: no national plans;

CY: In general, it would be better if there was an obligation to implement them. This is a general observation. Documents are quite good in general.

SL1:(depends of their quality)

SAPs are from different years; different structure and measures - differ in clarity; Good (Corncrake; focus on measures, more practical and specifies the objective of FCS); Bad (Shag; focus on information, alsmost no measures); What makes a plan useful is if it provides detailed and well described measures that fit well into the general scheme of EU instruments and programmes.

SL2:Few SPEC1 species occur in Slovenia. We are then interested in SPEC2 and SPEC3 species. It would help us to have SAPs for most of them, but we realise that this is not possible. At the moment EU level priorities are more or less OK.

SL3a:Generally yes for threats; with a comment that the action plan should be based on publicly available and published information; Slovenian national N2K programme provides a good example for a format how to organize the scientific information and references to ensure paper trail and consistency.

SL3b:Corncrake plan - OK; others - not

SL3c:Just for agriculture related species. Forest species of SLO not covered. Shag they didn't even try.What is needed: Measures to be defined in the frame of existing policy, using the technical language of that policy. To be relevant to the stakeholders who are expected to take action.

SL3d:No site mgmt plans for Natura 2000 sites in general, but for parks, etc. All site specific measures for Natura sites are incorporated into the main Management Programme for Natura 2000.Sectoral plans (e.g. forestry) are obligatory. They can include specific measures for species, but is not yet the common practice. (~20 forest management plans per year; renewable every 10 year)

SL4a:VARIABLE

SL4b:not applied in SLO

FI1:closer to yes; on the other hand because they are rather general and in different MS conditions vary they may not match very well the specific conditions of the MS. Hence the plans lose their credibility.

FI2:EU wide plans have limitation of not being too accurate - not very appropriate for FennoscandiaPerhaps it would have been useful during the starting phase to include a wide consultation among MS on which should be the species with such a wide EU plan.Also some MS have had their own national plans for some of these species and when an EU plan is developed it will be necessary to ensure consistency

FI3b:this vary among plans, but in general yes

FI3e:yes. In some cases they serve as a strategic guidance for the national plans

Fif:not always; e.g. for some species there are no threats in Finland;It is possible that my opinions relate to the draft versions and final ones may have improved.

FI3g:We have good national knowledge so we do not need this info in the EU plans.

FI:The selection of the species should be such that EU level action should bring an added value; and a flyway thinking should be included to reflect different problems in breeding, wintering and staging sites.

PT:Some stakeholders may find difficult to consult an English language document.

Some objectives are quite general and sometimes difficult to implement, especially when coordination between countries is required.

The translation into practical actions often requires a high level of integration within national sectors that is quite difficult to achieve without some legal framework of enforcement.

PL1.Yes, It can help to plan and coordinate actions for species on EU level. The problem is that it is not legally binding document, so it has poor use in practice.

PL2. Not really. The process of selection of species is not clear.

PL3.a. Generally yes, but much depends on plan and selection of threats and pressures (some are marginal in a scope of MS, others are very important). Threats and conservation needs are much more useful, if separated to countries.

PL3.b. Yes, but some articles are not as specific as they should to be transferred easily in practical action (Who? how? budget? questions remains)

PL3.c. English may be a problem. Also some used terms can be not understandable. Language of instruction could be more appropriate for some groups.

PL3.d. It does not have great influence for preparation of Natura2000 Management Plans.

PL3.e. The content is similar.

PL3.f. Generally yes, but some threats and pressures can be marginal in the scope of MS.

PL3.g. Sometimes crucial locations can be missed. Mostly due to new data coming from field researches (not incorporated in older SAPs)

PL4.a. i 4.b. Quality is good, but document is not much used in practice due to the fact that are not legally binding.

SK2: yes but we do not deal with this issue in detail

SK3 C. as most stakeholders do not use English

SK4: In general the use of these plans is not very broad, there are only a few country who are really familiar (usually experts interested and involved) and State Nature Conservancy of SR. The other stakeholders are not informed by us especially (from some the reply would be – provide text in Slovak).

Questions C

C. Experience with the plan format, single species and multi-species plans and the information provided by the Commission regarding SAPs and MPs.	Yes	No	I don't know
1.Is the current approach (single species APs or MPs) appropriate for your needs?	13	1	
2. Would another approach be more useful for your Member State, for example habitat –based or threat-based approach and in which cases? (please comment)	11	2	
3.Does your Member State already have comparable experience with such multi-species formats? (please comment)	4	10	
4. Do you find the information about the existing SAPs and MPs provided at the DG Environment website sufficient and of good quality?	12	2	
5. Have you been regularly informed by DG Environment about the existence of these documents and about their use to implement specific conservation measures for threatened bird species?	10	4	
6. In your view, what should be improved and how?			

Comments C

UK1.worked well up to date

UK2.With the ecosystem approach following from Nagoya, Defra would probably like to investigate this issue further. The question is how manageable would be to have an ecosystem plan? So, individual SAPs are relevant for those Nagoya targets that relate to preventing extinction of threatened species. Further down the list, ecosystem services and the importance of birds in them, is an issue requiring further thought.

UK3. Not huge. E.g. Natural England has looked at some habitats, but have not reached a formal planning level yet. Also considering it for the future. We are trying to encourage farmers to produce bird friendly habitat back on farmlands (e.g. the Campaign the 10 most wanted bird species). However, it is a voluntary campaign and it has a broader focus on biodiversity friendly farming.

UK3. Is this coming from a legal requirement?

Firstly, we are trying to improve the effectiveness of the agri-environmental schemes.

Secondly, we are promoting voluntary measures now, but if they fail, we would also propose regulation later on.

UK4.apart from the ones that are too old

UK5.I haven't seen anything specific, apart from the dialogue coming via Ornis. Do not recall specific information effort, apart from that the plans are easily accessible.

UK6. Regular updating/review (e.g. on a 5-year basis) is needed of the plans, to confirm their validity.

UK:It is good to ensure sufficient time for consultation. It is up to MS to decide how relevant a plan is for them and how much effort to put in it. Regarding implementation: No specific comment. A reporting system to review progress would help (8 species for the UK). It would be good to see if the trends of the species correspond to the expected objectives of the plan - something as simple is needed.

LT2.not really; threats can be different across MS so not easy to apply same approach. For example Aquatic Warbler is breeding in different habitats in LT, DE, PL. Same for some other species.

LT3. except site management plans

LT6. To receive information about the experience of implementation across MS. Regular updates on the implementation. Info should be provided on the website about examples from other MS. This info should come from the Ornis members. Could be presented in a table format with links to national sources.

DK 1.Generally OK, but depends on which species.

DK2.We have used the single species ones (e.g. the ones that are not site based such as red kite and corncrake) - for them they are quite fine; but for meadow birds and other habitat specialists we need more specific plans, e.g the site based plans.

DK3.Yes, one example Action plan for threatened meadow birds (2005) for Ruff, Dunlin and Black tailed Godwit - it is focusing on the breeding populations, developed nationally but used as a basis for applications for LIFE projects.Used in A-E schemes? Maybe not specifically used the plans, but there were lots of negotiations. The National A-E negotiations in DK have not succeeded very well in helping birds. Nature authorities are not strong enough. For specifc sites however, where these birds are, we support these species by other measures.

DK4.(it could be better)

DK5.Ornis c'tee member has been informed

DK.The plans in themselves are OK, but their impact is not really great, due to unsuccessful integration in other sectors (because they are not binding) it does not help us in the negotiations with other sectors. Information is not enough.

CY2: usefu to have species specific plans. But e.g. waders can be grouped by habitat and threat - might be useful - but cannot say if it achievable and more practical

CY5: generally during the preparation and consultation - yes; not during the implementation - no communication

CY6: there should be follow up - after adoption - e.g. every 1-2 years EC should send a reminder and ask MS what have they done to implement. Implementation can be helped if there was an obligation - link to the Birds Dirtective. It would be good if there was

SL1:Some single species plans are needed. To be able to apply them site by site. Especially for species with more specialized requirements towards the habitat.

SL2:Multi-species plans could be done for species that are less specialized. Such species also benefit from single species plans of other species.

SL3:The N2K programme is a multi-species format, but at most of the sites it is based on a single species plan.See examples: where at the same site there are Crex crex and Lanius colurio

SL6:Structure of the plans: weight should be shifted towards the concerted measures and their level of detail and the quality of the objectives. Budget: will be misleading and very difficult to calculate precisely. Costs will vary so much across countries, and they vary in time within country. PAFs could be used instead.Proposal: to include indication of which type of measure would be eligible for funding from which part of the Financial perspectives. This could work in time-schedule linked to the financial perspectives

FI1:yes and no. Yes: when you manage sites you have to take into account larger level habitat management. E.g. N2K sites are designated under both Birds and Habitat directives and habitat management should be implemented. But the single species plans are valuable for the threatened species.Wider orientated habitat based management plans could be useful (e.g. wetland restoration and management)

FI2:Habitat based Threat based: e.g. electrocution - good example

FI3:Yes

for example for the hutable wood grouse species - No

regarding threat based/

FI4:Sufficient, but not easy to find; MPs are 'hidden' under a very long text page

FI6:More regular way to follow up the implementation to be organized at the Ornis c'tee meetings regularly (3-6 years) perhaps connected to the reporting round.

Follow up on the needs to update the plans, regular review is needed.

Also people are changing and institutional memory is lost. It could be incorporated in the reporting. But because they are not obligatory - will add to the reporting burden, but FI would support it if it is done in a simple way.

ES2:e.g. specific threats suach as poissoning

ES6: legal obligation from the EU for its aplication, adaptation and use in the MS.

ES: In Spain the development of species Aps is compulsory by law, It involves more species than the ones aproved at EU level, therefore, in Spain there are numerous conservation strategies developed with the involvement of the different regional levels and administrations and specific plans for endangered species developed for the regional administrations.

PT2: A threat based approach could be a step forward of the current methodology, considering that many threats require specific technical knowledge and most are widespread over European Union.

PT3:Not much. In PT, there are some guidance manuals for specific land uses or threats, for example dealing with the electric power lines and linear infrastructures or related with specific habitat management (for example, rabbit improvement; forestry management, use of poison, etc).

PT:The EU SAPs are particularly useful at understanding and making clear the threats and the prioritization of action. Due to being very simple but informative documents, the EU SAPs are a useful tool when discussing with stakeholders or other governmental sectors, being a qualified reference on the species conservation.

The MPs have not been used in practice or implemented so far in PT. The MPs implementation might be hampered by similar measures targeting hunting management being scattered amongst the different plans.

BE1:For species that have specific needs for a habitat that only this species needs, yes, for the other ones it would be more relevant to have a Group Species Action Plan about species with the same needs.

BE3:No, we are planning to do so in 2012 for Circus pygargus and species with the same needs.

BE4:Yes, but a bit hard to find.

BE6:Action Plans for multiple-species with the same needs would be very useful. Also more information about how to implement the measures in the field are most welcome

CZ3: Charadrii, Falco peregrinus &cherrug

CZ: The process of preparing or finalizing each SAP is quite long, but in view of the process complexity its understandable

HU2:A threat-based approach could be useful, for example how to deal with illegal raptor poisoning, illegal hunting, electrocution, etc.;

HU3:We have a study by BirdLife Hungary on the conflict between birds and power lines.

HU6:A threat-based or multi-species approach could be useful.

PL1. Generally yes, but also multi-species (waterbirds) or habitat based approach could be considered.

PL2. Habitat based approach could be examined for some groups of species (waterbirds)

PL4. The procedure of selection of species is not included on the website. It is not clear enough at which stage you can be involved in the process or provide the comments (no information provided on the website). Some timetable or information about progress of work should be provided.

PL5. There is rather no continuity in the process. There is information about existence of plans but definitely not about use of plans by particular MS.

PL6. It should be strong encouragement form the Commission to use the documents (obligation would be better) or to have legally binding equivalent on MS level. Top - down communication should be improved to combat lack of knowledge about existence of SAPs at MS, regional and local level. Clear criteria of selection of species, information about process of preparation, adoption, use and updates of the document should be provided.

SK1.yes, it fits with the national approach of specific plans for specific species (in Slovakia we so far have only so called rescue programs for endangered species in legislation, not the plans to manage populations)

SK2.Another approach would be efficient in case of species sharing the same habitats and areas – with similar threats and action needed. Hard to reply, for which ones but surely if would be possible.

SK3. No expierence so far, might be usefull for design of the management plan of the specific area and for guidelines to manage specific habitats.

SK4. Yes, we page is well done. Sometimes changes lead to “loss” of valuable info.

SK5. Since being ORNIS contact information flow is very good.

SK6. More communication at the national level.

Questions D

D. Experience and recommendations for the improvement of the procedures of commissioning, development, consultation and approval of recovery plans as well as their monitoring and implementation.	Yes	No	I don't know
1. Do you find the current procedure suitable?	14		
2. Was a relevant service of your country involved in the elaboration of any such plans? (yes/no)	11	3	
3. Were the relevant services of your country consulted during the development of any such plans? (yes/no)	12	1	
4. Do you have any recommendations how this process can be improved? (please comment)	10	4	
5. Do you have recommendations to improve the implementation of the plans (monitoring,…)?	13	1	

Comments D

UK5. It is good to ensure sufficient time for consultation. It is up to MS to decide how relevant a plan is for them and how much effort to put in it.

Regarding implementation: No specific comment. A reporting system to review progress would help (8 species for the UK). It would be good to see if the trends of the species correspond to the expected objectives of the plan - something as simple is needed."

LT4.Should be necessary to organise consultations at national level - with key experts and organisations. So far such were not organised officially. Where to take time and resources? Maybe not additional resources needed, just a question of organization. How to involve other stakeholders? They should be invoved in the national action planning process.

LT5.So far little experience, as national plans not approved yet. But monitoring of the species and the implementation of the plans should be included in the plans.

DK 5. It is matter of funding and legal power. The problem is to make it happen in reality: tools are funding and negotiation. LIFE funding has been helpful, extra of it is welcomed. But EC should make a more direct link with the agri-environmental measures, especially for farm birds and the conservation of those species. How to make the link? Use the Birds Directive as a leverage in the negotiations at EU level. There must be a link but I am not familiar with it. I just see that at MS level it is not succeeding.

CY3: Game and Fauna dept was consulted, but not the forestry dpt and the envi. Service dept.

CY4: To get the national stakeholders more informed and participate at national level. DG Env should (or designate) a responsible authority to lead on this. It is not clear who should be leading and doing the consultations at national level.

CY5: Yes - to make an obligation to do it. Or a follow up report to be prepared by the MS regularly (eg. Every 2 years). Follow up will improve the implementation

SL4: In case of a contractor with national experts or national NGOs they should also be supported/part of the contract to facilitate the national input.

SL5: Stick strictly to the existing published information and references. Where possible use just links to this information. And consistent use of data and references.

FI1:it will be useful after the compilation of the first draft to insert a separate phase of consultation with MS at an early phase. Recommend to have a longer period for consultation (2 mo.).Also Ornis committee members to be contacted to suggest national experts. National experts can facilitate consultation at MS level.

FI5: To have a follow up system for the plans.

ES5: The plans need to be evaluated according to the legal instruments for each species (Estrategias de Conservación, Planes de Recuperación, etc).

ES5: The competent authorities in the conservation of biodiversity know this information and make it available to the parties involved in sectoral planning. However, the fact that the parties are informed can not be affirmed by the administrative authorities in the conservation of biodiversity.

PT3: In Madeira Autonomous Region yes.

PT4:Concerning the EU SAPs, it sometimes happened that comments sent by the Ornis Committee member to the Commission services were not integrated on the final documents nor there was enough opportunity to discuss or be aware of the rationale of the final decisions. There might be some room for improvement at this level.

The involvement of Ornis Committee members at an earlier stage may show some advantages, as quite often this member has the faculty to promote discussion of the plan within experts in the member state.

Content of written comments on the draft plans is sometimes difficult to understand. Some form of discussion rather than just sent written comments might be useful at later stages.

It is not clear who decides about the integration of comments made by the Ornis Committee member. Probably related with the fact that the AP development or revision is leaded by Birdlife or

BirdLife partners, it sometimes happened that the content of a plan is slightly directed towards threats that might be somehow overestimated and comments meant at altering those situation were not considered in the end.

PT5:The monitoring of the implementation of the EU SAPs in PT became mostly an administrative task without consultation of other entities behind the sectors causing the threats. A more thorough and wider process of implementation evaluation involving other stakeholders rather than just Birdlife partners and the Ornis Committee member could be advantageous. Also, some more dissemination at EU–level of the results of AP monitoring could be advantageous, targeting the activity sectors that cause main threats.

PT: Management Plans (MPs) for huntable bird species considered to have unfavorable status are commented and approved by the hunting governmental department. Species Action Plans (SAPs) for threatened birds are not discussed or approved by any other governmental or private entities apart from the governmental nature conservation agency and national experts.

BE1:Yes, but it would be useful if the MS is consulted in an earlier stage of the development to connect with the information in the plan and maybe to suggest some things for the implementation in the field.

BE4: Maybe consultation by those MS only that are part of the range of the species (maybe it is so already).

BE5: Add more elaborated actions and measures

CZ: It would be very useful to have any kind of monitoring of SAPs implementation and its effectiveness assessment.

HU4:The process is appropriate.

HU5: Stricter control by Commission on MSs derogations under Birds Directive Article 9 that are not in line with SAPs or MPs.

PL1. Yes, but information of possible involvement at different stage should be provided (on website for example).

PL2. Not yet, but in few cases some Polish NGOs experts was involved.

PL3. Yes, but as far as I know, only Ministry and Governmental Agencies were involved.

PL4. Clear information about the process and required consultation should be provided.

PL5. At least there should be strong encouragement form the Commission to use plans or obligation to develop equal MS legally binding document. Monitoring of adoption is also necessary.

SK2. State Nature Conservancy of the Slovak Republic and any other "competent" expert body (specified in the national law – rescue programs for protected species are one type of the official documentation, they are approved by our Ministry)

SK3. ORNIS members are informed on the selection of species and schedule for each year and then, about the draft and final versions

SK5. Yes, monitoring should be improved, it would again mean contacting member states…

Questions E

E. Experience with and the potential for integration of the conservation measures outlined in SAPs and MPs into the sectoral policies and plans at national and regional level.	**Yes**	**No**	**I don't know**
1. Does your administration promote the integration of bird conservation needs in sectors others than nature conservation (forestry, agriculture, fisheries, hunting…)?	12	2	
2. To what extent are SAPs and MPs useful to facilitate this integration?	10	2	
3. Have your relevant Member State authorities taken into account the conservation needs of threatened bird species in the programming of sectoral plans (Rural Development Plans, Renewable Energy Plans, Forestry plans, Transport infrastructure plans, Envir	13	1	
4. Is the information provided in EU SAPs and MPs easy to take into account in the context of spatial planning and environmental impact assessment?	8	5	
5. Are the relevant authorities and stakeholders (taking part in the sectoral planning process) informed of the existence of populations, protected sites and important habitats for threatened bird species for which EU SAPs and MPs have been adopted?	13	1	

Comments E

UK1.E.g. the Forestry Commission. In agriculture - we use our agri-environmental schemes. Specific campaign for the farmland environment. For fisheries - engagement on all issues important to them - e.g. cormorant, a lot of dialogue. With hunters - recently we had dialogues in relation to Game bird management - recent conflicts with Hen Harrier shooting

UK2. it is another tool that shows that the issues in discussion are actually a EU priority.

UK3. Defra - yes, same agency. For renewable energy for example - the role of Defra is to continue to promote the considerations about birds (e.g. in turbine siting).

Spatial planning - it is a challenge. Current political climate does not favour strong governmental intervention. So the approach is to communicate and promote awareness of value of biodiversity.

In Defra there is a specific staff member responsible for the integration.

The Natural Environment White Paper and the England Biodiversty strategy - using them to promote implementation.

Minimal regulation - is the current approach."

UK5. they are, but do not always listen. Dialogue with them is ongoing.

LT1. In general: Rural Development Plans and local and regional Forest Management plans - we try to integrate the species needs.

How? For example for Corncrake we incorporated delayed mowing was integrated into a national agri-environmental scheme. In the forestry sector: for example in local management plans we integrate the needs of the lesser spotted eagle - protection buffers 100m around the nest. In N2K sites forest owners get a compensation. Outside Natura 2000 sites forest owners usually not get the compensation, but sometimes they can apply for compensation if a new nest of protected bird of prey was found in their forest and new restrictions were set (for example changed the age group of trees allowed to cut from 80 years to 100 years)."

LT2. in general, but again they are concentrated information in an easy to understand way. Helpful to understand the threats.

LT3.Generally during the negotiation/consultation of the plans. Not very much in the Renewables (new issue, some problems with windfarms. Sensitive sites are excluded in general, windfarms are not allowed in N2K sites and in national protected areas (requirement of the Law on Protected Areas), but producers are interested in adjacent areas) and Transport (mostly been successful). Our ministry participates in the SEA and EIA procedures (competent authority).

LT4.more or less for EIA, not so much for spatial planning as the site information is too general

LT5. yes in general, especially during the SEA and EIA procedures

DK1.Yes, we have success in forestry and hunting sectors (they are in our agency). But in agriculture and fisheries - very difficult, because they are in more powerful ministry with other objectives.

DK2.To some extent, but they are not our main driver. Our main driver is the Birds Directive and the results of our monitoring programmes showing data at national level. In DK we have binding law for management plans for N2K where all authorities are obliged to follow them - this is the main tool in DK, but focus is on the network and the problem is what to do in the wider countryside.

DK3. Partly. It is not the common approach. When it happens it is the 'newspaper focus' - public awareness and pressure leads to a positive political effect for these species.

DK4.Not really. We usually refer back to national datasets. The EU plans gives a good overview, but for their use in integration, national and local data is used.

DK5. Yes, but whether they will care about it depends on which stakeholder it is. There is no legal power involved.

CY1: Yes for hunting and spatial planning - because it is their ministry; No for forestry and agriculture - because outside of their ministry. The reason: time problem and collaboration among ministries is not sufficient.

CY3: Sometimes yes, sometimes not. For example, RDP was produced in the early years and it was not taken. The renewable energy plan is newer. Game Fund is responsible to promote them.

CY4:It is not difficult to take them into account, SAPs and MPs are clear. But it is not so easy to take them into serious consideration. In general, integration is not easy to achieve.

CY5: Yes, they are informed. In the last 2-3 years they are more considerate. The reason is because they slowly start to accept the obligations under the EU Directives. IN the beginning it wasn't easy to achieve such a collaboration.

SL:No management plans

SL1: yes, we do it through the Natura 2000 Management Programme. It is included in A-E plans, forestry, water management plans and indirectly into the national RE plans.

SL4:no,. They rely on the EIA procedure

SL5: indirectly throught the Natura 2000 management plan

FI1: not very much; some experience with the forestry sector; with the agri-sector - the cross-copliance regulations; fisheries - not; hunting - in FI (under ministry of agruculture)

FI2: E.g. useful to identify needs and activities. But to be useful for integration at national level, they need to be budgeted - at MS level. Therefore in reality they have not been very useful, as we had not have enough resources to facilitate this process.

FI3: During the programming phase – no. On the other hand threatened species and wider nature conservation aspects are included in spatial planning and regional and national level - physical planning.

FI4: In forestry management plans at regional and local level: yes but this is closer to the operational phase, not to programming

FI5:In general yes for protected sites; and yes for threatened species - requirement by law; Mainly in the physical planning process, not in the sectoral plans.Which type of planning has bigger impact in FI?. Physical planning which covers all kinds of activities

ES2: Useful for its technical point of view

ES3:Application of Environmental Impact Assessment

PT1:IN PT, it was developed a special Sectoral Plan for Natura 2000, which should be integrated on land planning instruments and should be applied by the sectors developing their activity within the classified sites.

Environment impact assessment and strategic impact assessment procedures assure the integration of bird conservation whenever necessary at the project or strategic plan levels.

There is also integration of conservation objectives in Rural Development Program, mainly through integrated set of agri-environmental measures

Specific biodiversity management plans must be developed within forestry management plans inside Natura 2000.

Hunting management plans inside Natura 2000 (and protected areas) must integrate biodiversity issues; in the same way each year species to be hunted are identified as well as the respective calendar taking into account guidance from Ornis Committee; use of lead is forbidden in wetlands.

Land planning: biodiversity issues, particularly those related to Natura 2000 management measures are integrated, as appropriate, in all spatial plans (from municipality level to sectoral and regional levels).

Electrical companies: The nature conservation agency (ICNB) ensures that every project is subject to the correct impact evaluation procedure integrating bird conservation needs. Several protocols were conducted since 2003 between ICNB, electrical companies and NGO involved on bird conservation. Guidance about the minimization measures of the electrocution and collision risks was also developed and promoted. Strategic impact evaluation integrated bird needs too.

Transport infrastructure development plans: general guidance was developed by ICNB on the integration of bird and other animal group needs on the planning of linear infrastructures.

PT2:SAPs are easy to read and clear guidance documents, so they are very useful to use when integration with other sectors is required. MPs have not been used so far in that perspective.

PT3:See answer above; depends on the sector but stronger involvement is needed for the implementation of the bird conservation needs. Strategic Environmental Assessment assured the integration of some conservation needs in some plans.

BE1: Yes for forestry, agriculture and hunting

BE2:We don't have any experience with the use of SAP's and MP's to facilitate the integration.

BE3:Yes for Renewable Energy Plans, Forestry plans and Environmental plans.

BE4: We don't have any experience with the use of SAP's and MP's for this purpose.

CZ1:We try to.

CZ2:partly only

CZ4:it wouldn´t be so easy

HU2: Only national action plans are referred to in negotiations on integration.

HU3:Yes, but not directly on the basis of action plans. The recommendations of action plans are "interpreted" to other sectors by environmental authorities.

HU4:It is not directly the action plans that are taken into account during spatial planning or EIAs.

PL1. Yes, but mainly through Natura 2000 Management Plans and other legal acts (species conservation).

PL2. There are not useful. Rather Natura 2000 Management Plans, national SAPs and MPs are involved.

PL3. Yes, but rather from N2000 Management Plans and species conservation acts.

PL4. No, it is to less specific.

PL5. They are generally informed about all those things. We do not provide special information only for species which have EU SAPs or MS SAPs.

SK2:They can be excellent background information.

SK3. They are considered in rural development program and within the sector of environment

SK4. EIA/SEA is done by a large amount of institutions so it is not very easy, I think. State Nature Conservancy of SR is giving "expert opinion" within this procedure so may use the species plans.

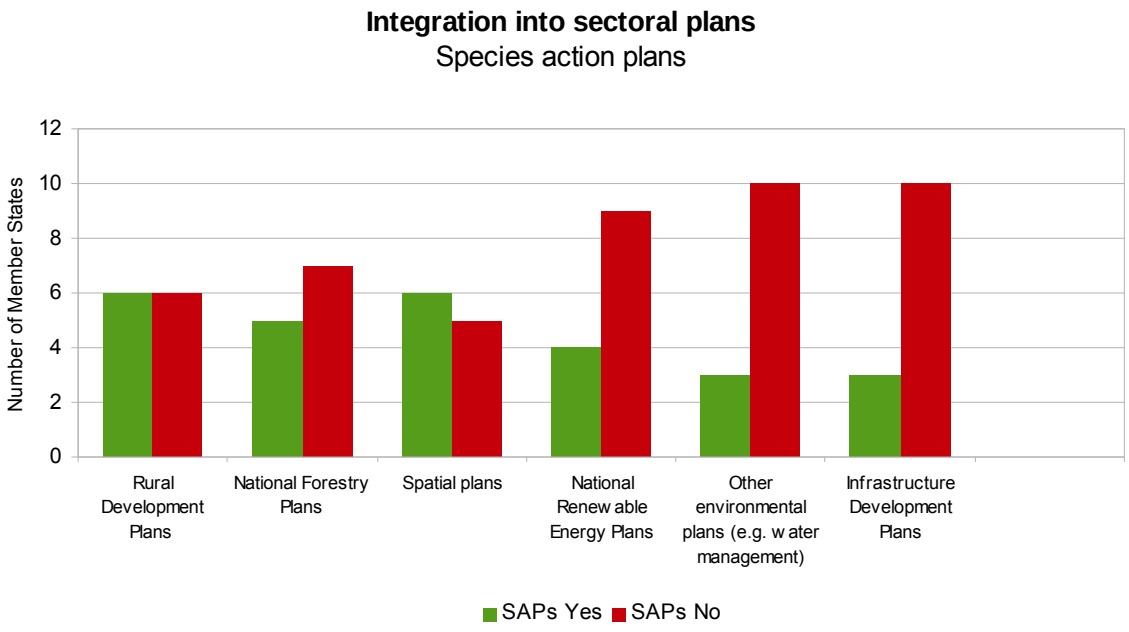
SK5: Not really apart for concrete areas and projects.

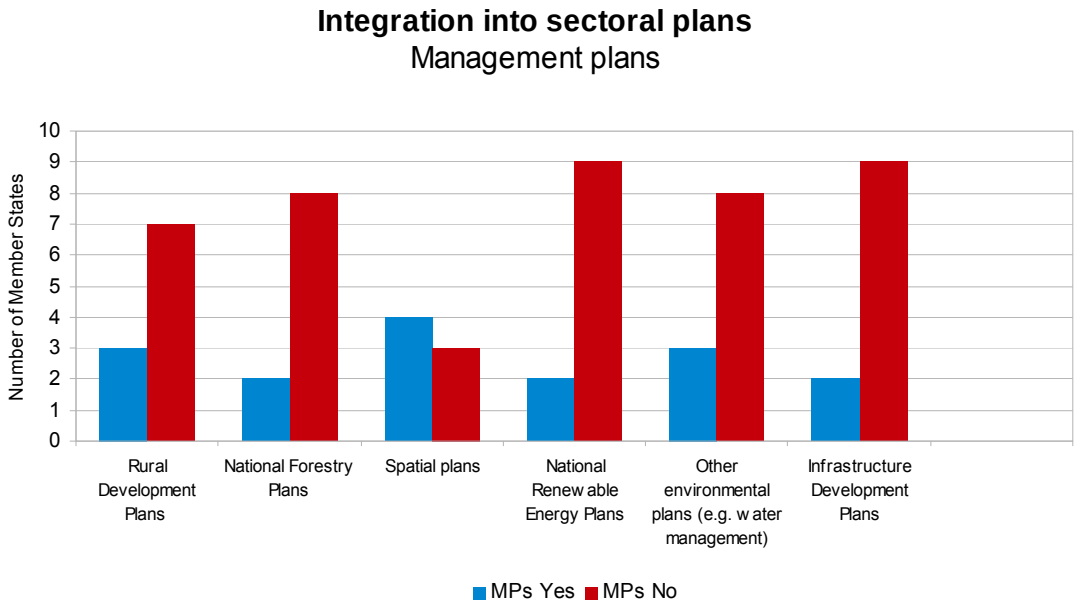
6. To your knowledge, has there been any reference to SAPs and MPs (at least for some of the key species applicable to your country) during the programming of sectoral plans such as:				
	SAPs		MPs	
	Yes	No	Yes	No
Rural Development Plans	6	6	3	7
National Forestry Plans	5	7	2	8
Spatial plans	6	5	4	3
National Renewable Energy Plans	4	9	2	9
Other environmental plans (e.g. water management)	3	10	3	8
Infrastructure Development Plans	3	10	2	9

Comments E-6:

ES6:National Strategy for the Natural Heritage and Biodiversity

PT6: Electric energy planning SAP





E-7. In your view, what should be improved and how?

Comments E-7:

UK7. Improved dialogue among the involved sectors at a national level.

LT Other: (for all above) Our ministry was trying to incorporate information from the SAPs into the planning of specific measures.

LT7. It is more a national problem how to make it work better. Sometimes lack of political will is the main problem.

What can the EC do to help? To provide better examples of integration e.g. the guidelines documents about Art. 6 are quite good in this context. Good examples are needed about integration of species conservation measures in: Renewable Energy Plans and their assessment; The EC guidelines for such assessments are a good example."

CY7. There should be better information and communication from the beginning so that all relevant sectoral services are involved. Also throughout the process. Who should be doing this? Not sure, the most logical would be the Ornis C'tee members, through our ministry.

SL7: Works well as a process, but the rate of success of integration depends very much on the power of the decision-makers and stakeholders involved.

FI7: Improve the way we promote them

ES7:As such, the SAPs and MPs are not usually considered in sectoral planning. However, its legal application in Spain (Strategies for Conservation and Recovery Plans previously mentioned) is taken into account, especially when assessing the environmental impact of these plans.

It would be important to be able to participate as responsible for the conservation of biodiversity, since the beginning in the development of sectoral plans, which would require coordination within each State.

Protected areas management plans SAP

Natura 2000 sites MP"

PT7:Best communication about the MP and SAP objectives, implementation and monitoring to relevant sectors.

BE7: Maybe the plans could obtain for each measure some information about possible conflicts or opportunities in different sectors.

CZ7: we don´t see any possibility

PL7: First of all to develop national SAPs. Information flow between MS and EC should be improved

SK6: according to my knowledge in none of them (except for rural development plan) at the national level. Situation may be different in concrete areas.

Questions F

F. Experience with species action plans at national/regional level			
1. Does your Member State use any of the following conservation planning tools:	Yes	No	I don't know
a. National species action/management plan	9	4	
b. Regional species action/management plan	6	7	
c. Group species action/management plan	3	8	
d. Habitat action/management plan	8	5	
e. Action plan dealing with particular threat/management issue	4	7	1
f. Other (please specify)		6	
g. None of the above			

Comments F

UKa certain species, yes (UK BAP), example Bittern

UKb plans are different in the Uk countries.

UKd Part of UK BAP

UKe. e.g. Ruddy Duck eradication plan;

Hen Harrier and shooting - a stakeholder group set up;

National Wildlife crime initiative - Raptor persecution is a priority issue;

The latter two plans act as monitoring tool, to help enforce/implement specific legislation;

Illegal poisoning in Scottland - poison baits;"

LT a National SAPs in preparation, required by Law on Protected animals, plants and Fungi species and communities (art. 9). 2010 Ministerial order was adopted about the requirements on preparation and adoption of the SAPs for the protected species.

LT d.yes for habitat types from the Habitats Directive and for habitats of the species listed in Habitats and Birds Directives - but they are mostly site related.

LT e no, except for an Oil spill management plan and guidelines (in prep. by the water Dept. of the ministry)

LT f Site management plans: there are 62 N2K management plans approved already. About 150 new ones are in prep. They are not required by law for all N2K sites; the site management plans have conservation objectives and targets for species.

DKd: LIFE projects yes for several habitat types; these areas will be part of N2K so the LIFE prject results into a site mgmt plan

DKe: similar to above

DKf: site management plans (binding) for N2K sites

CYa:starting to prepare for 2-3 huntable species (first); not for threatened species. But through LIFE project starting in 2012 some will be done. No legal obligation to have such.

CYd: not yet, planning in 2012 to create management plans for SPAs (site specific)

CYe: no, but have talked about having one for trapping. Planning to have one, a priority

FIa:Lesser White fronted Goose

White backed Woodpecker

Calidris alpina schinzii

Golden and White tailed Eagle

Huntable woodgrouses;

Grey partridge"

FIc: LIFE projects have developed plans for wetland management

SKd: no except for the publication Priaznivý stav biotopov a druhov európskeho významu (2005) that brought definition of favourable conservation status and proposed action for each species/habitat of Community interest

NL: For the meadow birds, including the three MP-species Black Tailed godwit, Lapwing and Redshank we have had special policies for decades, both in the field of EU- agri-environmental schemes and of grassland nature reserves. To a certain extent Curlew and Sky lark could benefit from those policies also, as well as other species. These policies are being reviewed regularly.

NL: We used to have national SAPs as policies that were complementary to site conservation. For efficiency reasons this approach was developed to the 'habitat approach' a few years ago, in which measures for a number of species could be taken at the same time. This will be decentralised to the regional authorities.

During the preparation, adoption, monitoring or implementation of recovery plans at national/regional level are any of the following organisations regularly involved and consulted:	Yes	No	I don't know
3. Do you have a special procedure regarding management plans of huntable species?	4	8	
4. Please explain how the species covered by national or regional Action Plans are selected:……..		2	1
5. Is the effectiveness of national or regional plans assessed? How?	6	3	1
6. Please explain how the national or regional Action Plans plans are prepared, adopted, implemented and monitored:……..			1

Comments F 3-6

UK4. Selection is made through the EBG. Usually JNCC report the species in need of conservation action. We look at the results of monitoring schemes. Monitoring in the UK is done on a collaborative basis. We use the Red, Amber and Green status indicators to guide our decisions.

UK5. via continuous annual monitoring going back to the 1960-s. Scientific advisors like JNCC carry out the evaluation and provide it to Defra.

UK6. The UK Biodiversity Group will look into the list of most threatened species. A planning team will be designated (usually by Natural England) to take the lead. Monitoring is ongoing and largely statistcical data is used.

LT 4. Consultation with experts from LOD and Institute of Ecology. Based on monitoring and analysis data.

LT5. There is a chapter in SAP on monitoring of the effectiveness of the plans, required by the ministry order

LT6. Public tender was issues for 10 species selected. Tender was won by the Institute of Ecology. The plans will be approved by the Ministerial order. The implementation will be based on tender. Each plan has an allocated budget. Structural funds provide the funds for the implementation (foreseen for 2012) and will last 32 months. According to the ToR

LT6. Nature Protection Department is responsible for the national action plans and their implementation.

DK3:Not quite familiar. We have Game Management Council with stakeholder organisations involved. Regular meetings (min 2/year). Ministry of Envi follows the decisions and recommendations made.

DK4:For huntable species: the Game management council takes into account advice by DOF or scientists and monitoring data. They discuss and give recommendation to the minister. For threatened species: the NERI is the main councilor for the ministry and gives opinion.

DK5: We have a national monitoring programme for bird populations (DOF and Universities involved). Monitoring data is taken into account - several meetings per year of the Game Mgmt council - all species are covered (birds and mammals).

DK6:Usually (but varies) scientists at NERI draft and edit the action plans. Then it is sent in consultation to stakeholders and authorities and for public hearing. Adoption by the minister of environment. Implementation is through allocation of funds (national budget) or through developing LIFE projects, nationally coordinated LIFE applications. We allocate funds to state owned area and areas with site managers which are directly linked to the ministry. We have also discussions between our ministry and ministry of agriculture and public works to shift responsibility of land management to ministry of environment - to improve mgmt. National funding can be allocated (not quite sure for how long).

SL3: Hunting management plans for 10 years with quotas (bags) for all game species. Each organization managing a hunting plan have a 10 year plan, and annual plans prepared for them by forest authorities. These plans set the bags, etc Public forestry service and hunting inspection is exercising the control.

SL5: Effectiveness of the measures in the N2K programme: Yes for 2008 and 2009, but not enough resources for 2010 (pending). Simple assessment done - measureable objectives. Assessment is done on the basis of publically available information by the Environmental Ministry.The key is to have measurable objectives and measures.

FI: all these plans are widely consulted through a legally required participatory process

FI3:no one universal system; the approach is species specific, but always participatory

FI4:Based on the Red List (Finnish)

FI5:In general: we have a regular Red List assessment in 10 years - a way to follow the impact of the plans; It showed improvement of white-backed woodpecker and eagles. But for the Lesser White fronted Goose - it is critical

FI6:it varies from species to species. In general one of the two leading ministries takes the lead. Preparation is commissioned to the relevant expert groups/organisations. Case by case basis. Implementation: Through the site management body Metsahalitus; many of the species are concentrated in the national protected areas;Species which are not concentrated in protected areas?

More tricky. No certain, specific organization has a leading role in the implementation phase.Group of experts is following the development of bird species on the Red List. This group involves different relevant stakeholders into an unofficial network of stakeholders. There are also special projects funded by the Ministry (e.g. Calidris alplina schinzii)"

ES4:Depending on its conservation status. The most endangered are included in the List of Wildlife Special Protection Regime and, where appropriate, in the Spanish Catalogue of Threatened Species, with the agreement of the Autonomous Communities and the Ministry of Environment and Rural and Marine

ES5:The evaluation is done through periodic monitoring and control of the conservation status of species.

ES6:Conservation Strategies: (national). Approved and agreement developed by the Autonomous Communities (CCAA) and the Ministry of Environment and Rural and Marine Affairs (MARM), with the support of experts. Enforced by the CCAA and coordination to MARM. Appropriate actions are taken in the field for execution. They are supervised by the Committee of Fauna and Flora, the coordinating body between regions and the Ministry of Environment and Rural and Marine

PT6: The preparation, adoption and implementation of plans follow an early and full participative bottom-up methodology, involving all relevant stakeholders; the adoption process may rely upon political decision through a legal act

BE4: by the Flemish red list status

BE5: By monitoring schemes

BE6:

1. Establish a working group with all the relevant stakeholders

2. Discussion about what should be included in the action plan

3. Mostly the plan is written by a contractor who consults the working group for comments and advise

4. If there is no existing monitoring network for the species, the monitoring is included in the action plan

5. Because all the relevant stakeholders are involved in the making of, the implementation simplifies, all the stakeholders know what to do.

CZ3: Hunting sector use Plans for breeding and hunting

CZ4: we have no plans

CZ5:we have no plans

HU4: species are selected by the ministry responsible for nature conservation based on subjective appraisal of threatened status.

HU6: the Ministry contracts and expert who drafts and submits the SAP. The draft is discussed by Ministry officials and finally approved by the minister or the deputy state secretary

HU:HU doest not implement particularly the EU MP plans for huntable species. Many of the species there are not suitable for site based management measures, but for generic actions. So the habitat management actions relevant to the huntable species can be used by the site managers to select measures. HU plans to develop MPs for huntable species at national level.

PL3: Yes they are developed by Ministry of Environment by regulation. It is approved by Forestry sector.

PL4: Most threatened (aquatic warbler, capercaille, black grouse) or most economical conflicts providing (great cormorant, grey heron, common crane)

PL5: Monitoring of population/habitats recovery.

PL6: The most threatened birds or birds that provide most economical conflicts are selected. The planning team involving key experts is selected. The draft is compiled and consulted (in paper procedure or/and in meetings) with governmental services, non-governmental association, scientific institutions, etc. The SAPs are adopted as regulations. All parties involved in implementation of SAPs are responsible for pursuance of conservation measures. Results of the SAPs are measured by population and habitats recovery monitoring.

SK4:according to their threat.

SK5. it depends on species. If action depends on finances, success is smaller.

SK6. There is a precise procedure in Act No 543/2002 Coll. On nature and landsape protection as amended and by its order No 24/2003 COll. As amended. (definition of rescue program, its content etc.).

Questions G

Do you have any other comments or recommendations to make regarding the conservation planning for bird species in the European Union?

Comments G:

UK

1) No specific recommendation for the level of the EU

2) More regular review of the plans is needed:

a) to keep them up to date (even if no changes are made) and

b) to facilitate implementation;"

DK:

In summary:

1) At site level (N2K) DK has a system of conservation planning that delivers. Beyond the N2K, the EU plans are not powerful enough to serve the purpose.

2) Most of the integration of bird conservation measures depends on negotiations and the power of the different sides is what matters most for the final outcome. The recovery plans alone do not provide sufficient leverage.

3) A stronger link between the legal requirements of the Birds Directive and the implementation of conservation measures for the species across the country would help. Such a link could be initiated by the Commission. "

CY:

1) There should be stronger pursuing from DG Env for consultation of stakeholders on national level

2) there should be follow up, based on national reporting from the MS to the EC - to evaluate what worked and what not. Reporting should be obligatory, every 2-3 years should be good enough. Although implementation is not obligatory, reporting on what was implemented would stimulate implementation.

3) It will be good if DG Env would make a link with respect to integration of the plans into the sectoral policies - for example by involving other DGs. E.g. DG Agri can send requests to the relevant MS agencies. Integration should work both on EU and MS level, EC should take the lead and show example.

SL:

1) Main weight to be on the proposed measures. More detailed objectives. Broken down by country if possible (e.g. range, population numbers, breeding success, etc)

2) link actions to eligibility for EU fund"

FI:

1) EU should concentrate on such plans where working together at EU level will give an added value, also by taking into account the lifecycle of the species.

2) DG Env to be more pro-active in promoting the conservation of these species in the sectoral policies of the EU.

3) EU role (e.g. through development cooperation) to find and promote solutions with countries in Africa and the wintering grounds.

4) If further plans are launched (they are already too many) it will be good to have a discussion at the Ornis c'tee of the criteria, for which species it will be useful to have such plans."

PL: It should be strong recommendation (obligation) to use this document, if there is no national equivalent. Top - down communication should be improved.

NL: Nature conservation policies have largely been decentralized in our country and will be decentralized even more in the near future

List of Member State officials contacted for the survey

Country code	Member State	Contact name	E-mail
AT	Austria	Edda-Maria Bertel	edda-maria.bertel@lebensministerium.at
BE	Belgium	Els Martens	els.martens@lne.vlaanderen.be
BE	Belgium	Sarah Roggeman	sarah.roggeman@lne.vlaanderen.be
BE	Belgium	Jeremy Simar	jeremy.simar@spw.wallonie.be
BG	Bulgaria	Valeri Georgiev	nnpsf@moew.government.bg
CY	Cyprus	Pantelis Hadjigerou	wildlife.thira@cytanet.com.cy
CY	Cyprus	Panicos Panayides	panayides.gf@cytanet.com.cy
CZ	Czech Republic	Eva Vojtechovska	eva.vojtechovska@nature.cz
CZ	Czech Republic	David Lacina	david_lacina@nature.cz
DE	Germany	Gerhard Adams	gerhard.adams@bmu.bund.de
DE	Germany	Detlef Szymanski	Detlef.Szymanski@hmuelv.hessen.de
DK	Denmark	Erik Buchwald	ecb@nst.dk
EE	Estonia	Üllar Rammul	yllar.rammul@envir.ee
GR	Greece	George Handrinos	gehandrinos@yahoo.gr
ES	Spain	Luis Mariano González	LMGonzales@mma.es
ES	Spain	Carlos Martin Novella	carlos.martin-novella@skynet.be
FI	Finland	Heikki Korpelainen	heikki.korpelainen@ymparisto.fi
FI	Finland	Janne Pitkanen	Janne.Pitkanen@mmm.fi
FR	France	Marianne Courouble	marianne.courouble@developpement-durable.gouv.fr
HU	Hungary	Rozalia Erdine	rozalia.szekeres.erdine@vm.gov.hu
HU	Hungary	Andras Schmidt	Andras.Schmidt@vm.gov.hu
IE	Ireland	Gerry Leckey	gerry.leckey@environ.ie
IE	Ireland	Ciaran O'Keeffe	ciaran.o'keeffe@environ.ie

IE	Ireland	Conor O'Raghallaigh	conor.o'raghallaig@environ.ie
IT	Italy	Eugenio Dupre	Dupre.Eugenio@minambiente.it
IT	Italy	Alessandro La Posta	Laposta.Alessandro@minambiente.it
IT	Italy	Anna Maria Bianchi	a.bianchi@politicheagricole.gov.it
LT	Lithuania	Dziugas Anuskevicius	d.anuskevicius@am.lt
LUX	Luxembourg	Sandra Cellina	Sandra.Cellina@mev.etat.lu
LUX	Luxembourg	Patrick Lorge	lnvlp@luxnatur.lu
LV	Latvia	Ilona Mendzina	Ilona.Mendzina@vidm.gov.lv
MT	Malta	Francis Albani	francis.albani@gov.mt
MT	Malta	Louis Cilia	louiscilia@rocketmail.com
MT	Malta	Darrin Stevens	darrin.stevens@mepa.org.mt
NL	Netherlands	Gerard van Dijk	g.van.dijk@minlnv.nl
NL	Netherlands	Jan Sevenster	j.g.sevenster@minlnv.nl
NL	Netherlands	Wilbert van Vliet	w.van.vliet@minlnv.nl
PL	Poland	Jakub Milczarek	jakub.milczarek@gdos.gov.pl
PT	Portugal	Manuela Nunes	nunesm@icnb.pt
RO	Romania	Alina Frim	alina.frim@mmediu.ro
RO	Romania	Anda Guttinger	anda.guttinger@mmediu.ro
RO	Romania	John Smaranda	john.smaranda@mmediu.ro
SE	Sweden	Krister Mild	krister.mild@naturvardsverket.se
SE	Sweden	Marie Dahlström	marie.dahlstrom@environment.ministry.se
SI	Slovenia	Andrej Bibic	andrej.bibic@gov.si
SK	Slovakia	Jana Durkosova	jana.durkosova@enviro.gov.sk
UK	United Kingdom	Elaine Kendall	Elaine.Kendall@defra.gsi.gov.uk
EEA	European Environmental Agency	Carlos Romao	Carlos.Romao@eea.europa.eu
EC	European Commission	Fotis Papoulias	Fotios.Papoulias@ec.europa.eu

ENV.B.3

QUESTIONNAIRE

Administrative information	Number:	
Member State:	Name of respondent:	Interview led by:
Authority:	Contact details:	Date of completion of interview:

Purpose of the Species Action Plans and Management Plans

Species Action Plans (SAPs) for threatened birds and Management Plans (MPs) for huntable species considered to be in unfavourable conservation status help Member States to understand the conservation needs of threatened birds. They assist Member States in fulfilling their obligation to restore and maintain bird populations at sustainable levels. Each plan analyses and evaluates the threats and describes the most suitable conservation actions needed for particular species. These documents are prepared in a participatory way, in close consultation with key stakeholders. The planning process results in a useful framework for the Member States agencies, conservation organisations and land managers to implement the right kinds of conservation measures in their country to improve the status of the target species. It is intended that the European Commission and national governments use these plans as management tools to help them better target the limited financial and human resources available for biodiversity conservation more effectively.

A. Awareness about Species Action Plans (SAPs) for threatened birds and Management Plans (MPs) for huntable bird species considered to have unfavourable status.

Questions A

1. Are you aware of the existence of EU SAPs and MPs for birds applicable to your country? (yes/no)
2. Was your member of the ORNIS Committee involved in the adoption of any such plans? (yes/no)
3. If yes for which species?[13]
4. According to your knowledge, is any of the following institutions in your country familiar with the existence of species action plans for birds (either international or national):

	Yes	No	I don't know
1) Governmental services responsible for:			
• Nature conservation			
• Agriculture and agri-environment			
• Forestry			
• Water management			
• Fisheries			
• Hunting and angling			
• Spatial planning			
2) Nature conservation NGOs			
3) Professional organisations in the:			
• Agricultural sector			
• Forestry sector			
• Fisheries sector			
• Hunting and angling sector			
4) Land owners organisations			
5) Scientific research institutions			
6) Private companies in the relevant field (e.g. environmental consultants)			

[13] A current list of EU SAPs and MPs approved by the Commission:
http://ec.europa.eu/environment/nature/conservation/wildbirds/action_plans/per_species_en.htm
http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/managt_plans_en.htm

7) Other relevant organisations (please specify)

…….

Please give clarification to your answers if needed: ……..

B. How useful and effective are the EU SAPs and MPs as tools for planning and implementation of conservation actions by the relevant services in your country.

SAPs and MPs are intended to support member state authorities in their design and application of special conservation measures for birds, specifically by providing up to date information about the threats that affect the species and the required conservation measures throughout the EU to mitigate them. The following questions examine how useful SAPs and MPs are for this purpose:

Questions B

1. Do you find EU SAPs and MPs generally useful? (yes/no)
2. Do you find the selection of bird species covered by EU SAPs or MPs appropriate? (yes/no)
3. Do you find the information provided in the EU SAPs and MPs documents:
    a. Helpful to understand the threats and conservation needs of the species (yes/no)
    b. Sufficiently clear, accurate and specific to be translated into practical actions (yes/no)
    c. Easy to communicate to other relevant services and stakeholders (yes/no)
    d. Helpful to inform the elaboration of Management Plans for Natura 2000 sites (yes/no)
    e. Helpful to elaborate your own national or regional plans for the conservation of threatened species or similar documents (yes/no)
    f. In accordance with the main threats that the species are facing in your country? (yes/no)

g. Do you find the information about the location and importance of key sites for the conservation of the target species included in SAPs/MPs accurate and sufficient for your needs? (yes/no)

4. According to your experience, how would you rate the quality of the documents:
   a. **SAPs:** poor – insufficient – good – very good
   b. **MPs:** poor – insufficient – good – very good

Please give clarification to your answers if needed: ……..

C. Experience with the plan format, single species and multi-species plans and the information provided by the Commission regarding SAPs and MPs.

The current model used for the SAPs and MPs approved by the EC has been based on the AEWA Single Species Action Plan format, therefore the plans have been targeted at individual threatened species. Taking into account that the majority of threatened bird species in the EU are already covered with existing plans, the Commission wants to examine the potential benefits of other possible plan formats, such as multi-species plans and their potential applicability to address common threats, management issues or ecological similarities among groups of species. The following questions examine this issue:

Questions C

1. Is the current approach (single species APs or MPs) appropriate for your needs?
2. Would another approach be more useful for your Member State, for example habitat – based or threat-based approach and in which cases? (please comment)
3. Does your Member State already have comparable experience with such multi-species formats? (please comment)
4. Do you find the information about the existing SAPs and MPs provided at the DG Environment website sufficient and of good quality?

5. Have you been regularly informed by DG Environment about the existence of these documents and about their use to implement specific conservation measures for threatened bird species?

6. In your view, what should be improved and how?

Please give clarification to your answers if needed: ……..

D. Experience and recommendations for the improvement of the procedures of commissioning, development, consultation and approval of recovery plans as well as their monitoring and implementation.

At present, the European Commission initiates the development of new plans based on recommendations, typically adopted by the Ornis Committee for a period of several years. The selection of species is primarily based on information about the regional threat status of the species (IUCN Red List category), population size, trend and distribution. The development of such plans is commissioned to external expert organization (for most plans concerning birds this has been BirdLife International). The procedure for their development has been roughly the same for all plans:

i. setting up of lead compiler and planning team, involving key experts on the species from the most important range states,

ii. Preparation of status report,

iii. Convention of an expert workshop,

iv. Production of a first draft for consultation with Member States (technical services, academic and NGO experts),

v. Consultation, vi. Production of a second draft,

vi. Consultation with MS (Ornis committee members),

vii. Production of a final draft.

For most plans, the monitoring of the implementation of the plans has not been integral part of this process and has been done separately.

Questions D

1. Do you find the current procedure suitable?

2. Was a relevant service of your country involved in the elaboration of any such plans? (yes/no)
3. Were the relevant services of your country consulted during the development of any such plans? (yes/no)
4. Do you have any recommendations how this process can be improved? (please comment)
5. Do you have recommendations to improve the implementation of the plans (monitoring,…)?

Please give clarification to your answers if needed: ……..

E. Experience with and the potential for integration of the conservation measures outlined in SAPs and MPs into the sectoral policies and plans at national and regional level.

While species recovery is one of the core tasks of the EU biodiversity policy, European biodiversity is primarily affected by human activities (drivers) outside the direct influence of the environmental sector, such as agriculture, forestry, fisheries and urbanisation. Therefore the conservation of threatened birds depends also on broader land-use and water-use patterns. The fundamental condition is to ensure that the relevant policies take into account biodiversity and avoid as far as possible any negative impacts. Environmental authorities can champion the integration of conservation measures into other economic sectors and partly the purpose of SAPs and MPs is to support this process. How successful this has been is the subject of the following questions.

Questions E

1. Does your administration promote the integration of bird conservation needs in sectors others than nature conservation (forestry, agriculture, fisheries, hunting…)?

2. To what extent are SAPs and MPs useful to facilitate this integration?

3. Have your relevant Member State authorities take into account the conservation needs of threatened bird species in the programming of sectoral plans (Rural Development Plans, Renewable Energy Plans, Forestry plans, Transport infrastructure plans, Environment plans…)?

4. Is the information provided in EU SAPs and MPs easy to take into account in the context of spatial planning and environmental impact assessment?

5. Are the relevant authorities and stakeholders (taking part in the sectoral planning process) informed of the existence of populations, protected sites and important habitats for threatened bird species for which EU SAPs and MPs have been adopted?

6. To your knowledge, has there been any reference to SAPs and MPs (at least for some of the key species applicable to your country) during the programming of sectoral plans such as:

	SAPs		MPs	
	Yes	No	Yes	No
Rural Development Plans				
National Renewable Energy plans				
National Forestry Plans				
Other environment plans (e.g. water management)				
Transport infrastructure development plans				
Other (please specify)				

7. In your view, what should be improved and how?

Please give clarification to your answers if needed: ……..

F. Experience with species action plans at national/regional level

EU SAPs and MPs are intended to provide the basic information and the framework within which Member States to select their own priorities for implementation at a national or lower level. Some Member States have developed their own system of national action plans (biodiversity plans), while

it is expected that others may refer to the EU documents. The following questions aim to explore these experiences.

Questions F

1. Does your Member State use any of the following conservation planning tools:

a. National species action/management plan

b. Regional species action/management plan

c. Group species action/management plan

d. Habitat action/management plan

e. Action plan dealing with particular threat/management issue

f. Other (please specify)

g. None of the above

2. During the preparation, adoption, monitoring or implementation of recovery plans at national/regional level are any of the following organisations regularly involved and consulted:

a. Governmental services	**b. Non-governmental associations representing the**:	**c. Other (please specify)**:
• Nature conservation service • Agriculture authorities • Forestry authorities • Fisheries authorities • Hunting authorities	• Agricultural sector • Forestry sector • Fisheries sector • Hunting and angling sector • Land owners • Nature conservation NGOs	……..

3. Do you have a special procedure regarding management plans of huntable species?

4. Please explain how the species covered by national or regional Action Plans are selected:……..

5. Is the effectiveness of national or regional plans assessed? How?

6. Please explain how the national or regional Action Plans plans are prepared, adopted, implemented and monitored:……..

G. Do you have any other comments or recommendations to make regarding the conservation planning for bird species in the European Union?

Please give more comments if needed: ……..

End

Annex III – Conservation Prioritisation for Bird Species in the EU

Prioritising conservation action for birds in the European Union:

developing criteria for selecting species in need of EU action plans

Background

Of the c. 10,000 bird species in the world, c. 530 occur regularly and naturally in the wild in Europe, including c. 460 in the European Union. While 12% of the world's bird species are considered to have a relatively high risk of global extinction (BirdLife International 2011, www.iucnredlist.org), 43% of European species are considered to be in unfavourable conservation status at continental level (BirdLife International 2004a), and 48% at the level of the European Union (BirdLife International 2004b). Notwithstanding discussions about which criteria should be used to assess conservation status, it is clear that many European species are in deep trouble.

Recognising their obligations under the Birds Directive, the European Commission (EC) and Member States have developed, adopted and implemented action/management plans for a significant number of these species since the mid-1990s. Many of these plans have targeted globally threatened species listed on Annex I, or declining huntable species listed on Annex II, and many of them have helped achieve remarkable results (Nagy and Crockford 2004; Barov and Derhé 2011). However, the process by which species are prioritised and selected for coverage by plans has not been particularly transparent or objective. In some cases, this has led to plans being developed for species of relatively low priority, whilst others in greater need have been neglected.

To rectify this situation, the EC is keen to adopt a new system for prioritising species for the development of such plans, based on objective, transparent criteria and sound science. It should be adaptable (to cater for future expansion of the EU), flexible (so that it can also be applied at the level of subspecies, flyway populations or other management units), scalable (to allow application at smaller and larger spatial scales, e.g. national and pan-European), robust and repeatable. Ideally, it should be as simple as possible and generate a manageable set of clear priorities.

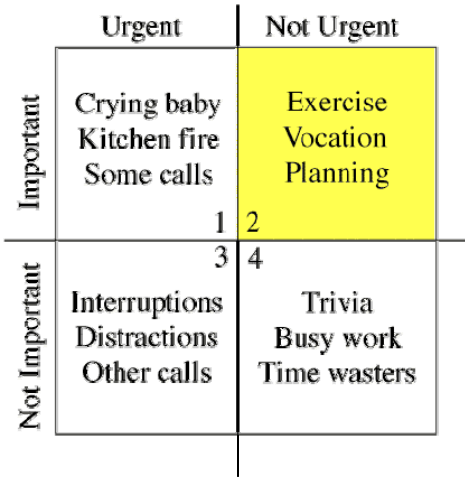
This paper describes a method developed to meet these needs, reflecting both the global and regional status of species, and the EU's global responsibility for them. It involves the uniform application of logical criteria to all species, followed by ranking and fine-tuning using the latest available population and trend data. A draft version of the paper was presented at a conference organised under this contract in Brussels on 23-24 November 2010. The current version has been revised on the basis of feedback received, both at that conference and more recently from the EC.

It should be noted that, for the purposes of this paper, the proposed method has been applied using two basic data sources: the global IUCN Red List assessment of threatened birds (2012) and the latest comprehensive conservation assessment *Birds in the European Union: a status assessment* (2004). BirdLife has just completed a comprehensive, 4-yearly update of the global IUCN Red List assessment for birds. The results will be launched officially in May 2012, but they have been incorporated here to ensure that this document reflects the latest changes. The EU level data set will be updated in 2014, using the first results of the new Article 12 reporting system under the Birds Directive. This means that the prioritisation method proposed here will need to be reapplied then. Therefore, the current paper aims primarily to introduce the method. The ensuing priority lists should be treated as provisional, for use in the coming few years, but in need of update after 2014.

Methods and data sources

One of the most logical and widely used methods for prioritising actions is the four-quadrant matrix developed by Covey *et al*. (1994). It involves allocating all relevant tasks to one of four categories, according to their importance and urgency (Figure 1). Naturally, the highest priority tasks (1) are those ranked as both important and urgent. However, human nature means that the next highest ranking (2) are often overlooked in favour of those that are urgent but not important (3). This means that there is a risk that some important tasks are often ignored until they become urgent, by which time the situation may have become so serious, or deteriorated so far, that many more resources are needed to solve it than if action had been taken earlier.

Figure 1. The four-quadrant prioritisation matrix for importance and urgency (Covey *et al*. 1994)



Importance

In the current context, importance can most usefully be considered as the global responsibility of the European Union for each bird species. The EU is totally responsible for species (and subspecies or other distinct populations) that are endemic to the geographical area where the Birds Directive applies. It also has a high responsibility for species whose global population and/or range is concentrated in the EU, whether as residents or migrant visitors. However, the EU cannot be said to have a high responsibility for species

that occur only marginally within its borders. For example, there are a number of species whose global ranges extend just inside the EU, particularly in the extreme north, south and east. The main responsibility for conserving such species lies with countries in the Arctic, Asia, the Middle East and Africa (although the Birds Directive obliges relevant Member States to take measures to ensure their survival and reproduction in their area of distribution, especially for Annex I and regularly occurring migratory species).

To this end, for every species included in *Birds in Europe 2* (BirdLife International 2004a), the proportion of the global population and/or range occurring in the EU was estimated and allocated to one of five categories:

0 = none (0%)	e.g. *Histrionicus histrionicus*
1 = 1-25%	e.g. *Gallinula chloropus*
2 = 25-49%	e.g. *Falco naumanni*
3 = 50-74%	e.g. *Turdus torquatus*
4 = 75-100%	e.g. *Puffinus puffinus*

These categories were selected for purely practical reasons, having already been used to classify species in *Birds in the European Union* (BirdLife International 2004b). As such, it was straightforward to review that classification and update it where necessary (to allow for the accession of Romania and Bulgaria in 2007).

For migratory species occurring in different proportions in different seasons, the highest proportion was used. For example, several species of geese are entirely absent from the EU during the breeding season (score 0), but virtually their entire global populations winter in the EU (score 4), so they were scored as 4.

The reason for classifying importance by the proportion of the population **and/or** range is that global population estimates are not available for many species. In such instances, the proportion of the global range falling within the EU was used as a proxy for its importance, as the global distributions of most species are known reasonably well. This is not a perfect solution, as the density of some species varies hugely across their ranges. For example, the EU contains much less than one quarter of the global breeding range of *Otis tarda*, but almost half of its global population, reflecting high densities in Iberia but low densities across much of Asia. In rare cases like this, where both variables are known, the highest proportion was used, but in most cases the absence of reliable population estimates from outside Europe means that range was often used as a proxy.

Urgency

Globally, the most widely used system for ranking species according to the urgency of their need for action is the IUCN Red List (www.iucnredlist.org). By consistently applying the Red List criteria, it is possible to allocate species to one of a number of threat categories, depending on their relative extinction risk. The global status of all European species has been assessed on multiple occasions by BirdLife International (the official Red List Authority for birds for the IUCN Red List), so it was straightforward to allocate each species to one of five categories on this basis:

0 = Least Concern e.g. *Columba palumbus*

1 = Near Threatened (NT) e.g. *Milvus milvus*

2 = Vulnerable (VU) e.g. *Acrocephalus paludicola*

3 = Endangered (EN) e.g. *Branta ruficollis*

4 = Critically Endangered (CR) e.g. *Puffinus mauretanicus*

Compared with other continents, Europe is fortunate in having 'only' 27 globally threatened species (categories 2, 3 and 4) and 26 near threatened species (category 1). At EU level, however, many other species are also threatened and in need of action – in some cases, to prevent them from being added to the global Red List. These species were identified in *Birds in the European Union* (BirdLife International 2004b), which applied the IUCN Red List criteria at the scale of the EU25. On this basis, each species was allocated to one of four categories:

0 = Least Concern (LC)e.g. *Dendrocopos major*

1 = Vulnerable (VU) e.g. *Vanellus vanellus*

2 = Endangered (EN) e.g. *Hieraaetus fasciatus*

3 = Critically Endangered (CR) e.g. *Anser erythropus*

It should be noted that this EU-level scoring was done on the basis of an assessment made at EU25 scale, before the accession of Romania and Bulgaria in 2007. It is therefore likely that, for a minority of species, the EU threat status might have been different if assessed at the current scale of the EU27. However, the population and trend data used to make this assessment date from before or around the year 2000 anyway, i.e. well before the accession of the 12 newest Member States in 2004 and 2007. It is clear that new data need to be collated to produce an updated picture for the current EU, and this will happen in 2014, via Article 12 reporting. For now, the existing data and assessments are the best available and have been used for the purposes of illustration.

Prioritisation into groups

Having scored all species for (1) EU responsibility/importance, (2) global status/urgency and (3) EU status/urgency, species were allocated to the relevant cell in a prioritisation matrix (Table 1), similar to that developed by Covey *et al*. (1994). Species falling in any of the 28 coloured cells were accorded the relevant priority level (1 to 4). Species falling in any of the 12 grey cells were deemed not to be priorities at present.

Ranking within groups

Within a matrix row or column, the highest priority species are obviously those in cells closer to the left or top of the matrix, respectively, but ranking species within the same priority group is not so straightforward. For example, within priority group 2, is it a higher priority to focus on a Vulnerable species with less than half of its global population/range in Europe (e.g. *Otis tarda*), or a Near Threatened species with more than three-quarters of its global population/range in Europe (e.g. *Tetrax tetrax*)?

Table 1. Matrix for prioritising the need for conservation action by European bird species.

		IMPORTANCE: Highest proportion of global population or range in EU (at any stage during annual life cycle)				
		75-100%	50-74%	25-49%	1-25%	None (0%)
GLOBAL URGENCY: Global threat status (2010 IUCN Red List)	CR	1	1	1	2	
	EN	1	1	2	2	
	VU	1	2	2	3	
	NT	2	2	3	3	
EU URGENCY: EU threat status (2004 Birds in the EU)	CR	2	3	3	4	
	EN	3	3	4	4	
	VU	3	4	4	4	
	LC					

One logical way to rank species within priority groups is using the latest available data about the size and trend of their EU populations (see also Eriksson 2008, Gallo Orsi and Orhun 2008). To this end, the species in each priority group were ranked first by their EU population trend (ranking the most rapidly declining highest) and then by their EU population size (ranking the smallest highest). Following the precautionary principle, species whose EU trends were uncertain or unknown were ranked more highly than those known to be stable or increasing, to stimulate survey or monitoring efforts to determine their actual trends (Table 4).

The data used were those collated for *Birds in the European Union* (BirdLife International 2004b), adding the EU25 figures therein to those for Romania and Bulgaria from *Birds in Europe* (BirdLife International 2004a), to reconstruct the picture for the EU27. It is important to note that these data are now a decade old, and in a few cases more up to date information is now available (see e.g. Barov and Derhé 2011). For illustrative purposes, however, they are still considered the best available data covering all species, as they were collated at the same time and in the same way.

Adjustments for marginal and relatively common species

Some species whose global population or range extends just inside the EU may have an artificially inflated EU threat status, which confounds the ranking. This situation arises when the core (non-EU) population of such species is not considered capable of exerting a 'rescue effect' to improve the status of the marginal EU population. Under the guidelines developed for the regional application of the IUCN Red List criteria (IUCN 2003), it is not possible to 'downgrade' the status of such species. However, common sense dictates that it is not a wise use of resources to prioritise action for species that barely occur within the EU (regardless of their regional threat status) at the expense of others for which the EU has a core responsibility. Here, marginality was addressed when ranking species by 'downgrading' their priority for EU level action (Table 5).

Similarly, some species remain relatively common and widespread in the EU, even though their population is declining fast enough to trigger IUCN Red List criterion A (approaching or exceeding a decline of 30% over ten years or three generations, whichever is longer). It is vital to halt and reverse the decline of such species as soon as possible, but this often requires large-scale changes in habitat use and resource management, which can usually only be achieved by adapting existing policy instruments (e.g. the CAP and CFP) or developing new ones. This differs from the more typical measures needed at site or species level to conserve rare, localised or threatened species, which are the core focus of Species Action Plans and LIFE funding. For this reason, the priority level of species whose EU populations exceed 100,000 pairs and which are not globally threatened or near-threatened was 'downgraded' (Table 4).

The consequence of such adjustments is that the species involved are downgraded to a lower priority level. The extent to which they are downgraded is open to debate, although some useful guidance (in the form of an annotated flowchart) can be found in the regional Red List application guidelines (IUCN 2003). This guidance could be adapted relatively easily for use in this context.

Results

Tables 2 and 3 present the results of applying this method to the data for all (526) bird species considered in *Birds in Europe* (BirdLife International 2004a), plus *Grus leucogeranus* (which occurs regularly on passage in Azerbaijan) and *Oceanodroma monteiroi* (recently split from *O. castro*). In total, 74 (14%) of these species were classified in one of the four priority groups defined by the matrix (Table 2). Of these, 46 species of global conservation concern were classified as priorities for action (groups 1, 2 and 3), along with 28 additional species of EU conservation concern (all except one in group 4; Table 3). Please note that the grey cells in the bottom row and right hand column of Table 1 have been excluded from Tables 2 and 3, to save space (as most species fall in these cells, and they are not currently considered priorities).

Table 4 presents the results of applying the guidelines for ranking these 74 species within groups and then downgrading 18 of them due to their marginal distribution or relative abundance in the EU. Table 5 summarises why ten species are considered marginal in the EU and have been downgraded (i.e. not treated as high priorities for EU-level conservation action). This should **not** be interpreted as suggesting that they are low priorities in the Member States where they occur, as many of them are globally Near Threatened and listed on Annex I of the Birds Directive.

Table 2. Summarised results of applying the prioritisation matrix to all (528) European bird species, showing the 74 (14%) classified in priority groups 1 to 4.

Priority group (from matrix)	1	2	3	4	Total
Number of species in group	8	15	24	27	74

Table 3. Detailed results of applying the prioritisation matrix to all (528) European bird species, showing the 74 (14%) classified as priorities.

		IMPORTANCE: Highest proportion of global population or range in European Union (at any stage during annual life cycle)			
		>75%	50-74%	25-49%	<25%
GLOBAL URGENCY: Global threat status (2010 IUCN Red List)	CR	*Puffinus mauretanicus*			
	EN	*Pterodroma madeira, Branta ruficollis, Melanitta fusca, Pyrrhula murina*			*Oxyura leucocephala, Neophron percnopterus, Falco cherrug*
	VU	*Puffinus yelkouan, Aquila adalberti, Oceanodroma monteiroi*	*Clangula hyemalis*	*Otis tarda*	*Pelecanus crispus, Anser erythropus, Marmaronetta angustirostris, Polysticta stelleri, Aquila clanga, Aquila heliaca, Chlamydotis undulata, Acrocephalus paludicola, Emberiza aureola*
	NT	*Milvus milvus, Tetrax tetrax, Larus audouinii, Columba junoniae, Saxicola dacotiae, Sylvia undata, Sitta whiteheadi, Fringilla teydea*	*Alectoris graeca, Numenius arquata*	*Pterodroma feae, Aegypius monachus, Limosa limosa, Chersophilus duponti*	*Gavia adamsii, Aythya nyroca, Circus macrourus, Falco vespertinus, Glareola nordmanni, Gallinago media, Coracias garrulus, Ficedula semitorquata, Sitta krueperi, Emberiza cineracea*
EU URGENCY: EU threat status (2004 Birds in the EU)	CR				*Tadorna ferruginea, Turnix sylvatica, Fulica cristata*
	EN				*Aythya marila, Hieraaetus fasciatus, Cursorius cursor, Limosa lapponica, Anthus cervinus*
	VU	*Calonectris diomedea*	*Vanellus vanellus*	*Branta bernicla, Burhinus oedicnemus, Lanius minor*	*Podiceps auritus, Pelagodroma marina, Cygnus columbianus, Anas querquedula, Gypaetus barbatus, Falco biarmicus, Perdix perdix, Eudromias morinellus, Philomachus pugnax, Pterocles orientalis, Streptopelia turtur, Calandrella brachydactyla, Eremophila alpestris, Erythropygia galactotes, Parus montanus*

Table 4. The top priorities for bird species conservation action in the EU identified using this method, highlighting those downgraded by adjustment. Note: species population estimates marked * were expressed as individuals rather than breeding pairs in BirdLife International (2004a, b) but have been divided by a factor of 3 here, to standardise them for ranking.

Scientific name	English name	Priority	Overall EU27 trend 1990-2000	Average EU27	Reason for downgrad
Puffinus mauretanicus	Balearic Shearwater	1	Large decline	1,838	
Melanitta fusca	Velvet Scoter	1	Moderate decline	36,666 *	
Oceanodroma monteiroi	Monteiro's Storm-petrel	1	Unknown	275	
Pterodroma madeira	Zino's Petrel	1	Stable	35	
Pyrrhula murina	Azores Bullfinch	1	Stable	80 *	
Aquila adalberti	Spanish Imperial Eagle	1	Stable	177	
Branta ruficollis	Red-breasted Goose	1	Stable	10,000 *	
Puffinus yelkouan	Yelkouan Shearwater	1	Stable	17,935	
Neophron percnopterus	Egyptian Vulture	2	Large decline	1,770	
Tetrax tetrax	Little Bustard	2	Large decline	65,000 *	
Milvus milvus	Red Kite	2	Moderate decline	20,560	
Numenius arquata	Eurasian Curlew	2	Moderate decline	192,649	
Columba junoniae	White-tailed Laurel Pigeon	2	Unknown	1,750	
Sylvia undata	Dartford Warbler	2	Unknown	2,801,750	
Saxicola dacotiae	Fuerteventura Chat	2	Stable	1,294	
Fringilla teydea	Blue Chaffinch	2	Stable	1,750	
Sitta whiteheadi	Corsican Nuthatch	2	Stable	3,000	
Otis tarda	Great Bustard	2	Stable	8,500 *	
Alectoris graeca	Rock Partridge	2	Stable	28,500	
Clangula hyemalis	Long-tailed Duck	2	Stable	666,667 *	
Falco cherrug	Saker Falcon	2	Large increase	206	

Scientific name	English name	Priority	Overall EU27 trend 1990-2000	Average EU27	Reason for downgrad
Oxyura leucocephala	White-headed Duck	2	Large increase	625	
Larus audouinii	Audouin's Gull	2	Large increase	18,652	
Emberiza aureola	Yellow-breasted Bunting	3	Large decline	6	Marginal
Anser erythropus	Lesser White-fronted Goose	3	Large decline	8	
Falco vespertinus	Red-footed Falcon	3	Large decline	2,843	
Acrocephalus paludicola	Aquatic Warbler	3	Large decline	3,544	
Limosa limosa	Black-tailed Godwit	3	Large decline	64,391	
Gallinago media	Great Snipe	3	Moderate decline	3,153	
Ficedula semitorquata	Semi-collared Flycatcher	3	Moderate decline	4,500	
Aythya nyroca	Ferruginous Duck	3	Moderate decline	7,412	
Coracias garrulus	European Roller	3	Moderate decline	14,670	
Calonectris diomedea	Cory's Shearwater	3	Moderate decline	274,420	>100,000 p
Gavia adamsii	Yellow-billed Loon	3	Unknown	50 *	Marginal
Chlamydotis undulata	Houbara Bustard	3	Unknown	200 *	
Glareola nordmanni	Black-winged Pratincole	3	Stable	2	Marginal
Circus macrourus	Pallid Harrier	3	Stable	4	Marginal
Aquila clanga	Greater Spotted Eagle	3	Stable	43	
Marmaronetta angustirostris	Marbled Teal	3	Stable	119	
Sitta krueperi	Krüper's Nuthatch	3	Stable	125	Marginal
Emberiza cineracea	Cinereous Bunting	3	Stable	210	Marginal
Pterodroma feae	Fea's Petrel	3	Stable	216	
Polysticta stelleri	Steller's Eider	3	Stable	2,500 *	
Chersophilus duponti	Dupont's Lark	3	Stable	14,000	

Scientific name	English name	Priority	Overall EU27 trend 1990-2000	Average EU27	Reason for downgrad
Pelecanus crispus	Dalmatian Pelican	3	Moderate increase	1,089	
Aquila heliaca	Eastern Imperial Eagle	3	Large increase	130	
Aegypius monachus	Cinereous Vulture	3	Large increase	1,392	
Hieraaetus fasciatus	Bonelli's Eagle	4	Large decline	940	
Anthus cervinus	Red-throated Pipit	4	Large decline	2,350	Marginal
Podiceps auritus	Horned Grebe	4	Large decline	4,491	
Cygnus columbianus	Tundra Swan	4	Large decline	7,667 *	
Erythropygia galactotes	Rufous-tailed Scrub-robin	4	Large decline	16,102	
Anas querquedula	Garganey	4	Large decline	22,666	
Aythya marila	Greater Scaup	4	Large decline	40,000 *	
Burhinus oedicnemus	Eurasian Thick-knee	4	Large decline	49,975	
Philomachus pugnax	Ruff	4	Large decline	61,046	
Branta bernicla	Brent Goose	4	Large decline	80,000 *	
Lanius minor	Lesser Grey Shrike	4	Large decline	628,800	>100,000 p
Vanellus vanellus	Northern Lapwing	4	Large decline	1,088,962	>100,000 p
Perdix perdix	Grey Partridge	4	Large decline	1,387,389	>100,000 p
Streptopelia turtur	European Turtle-dove	4	Large decline	2,181,217	>100,000 p
Calandrella brachydactyla	Greater Short-toed Lark	4	Large decline	2,477,171	>100,000 p
Parus montanus	Willow Tit	4	Large decline	4,145,199	>100,000 p
Fulica cristata	Red-knobbed Coot	4	Moderate decline	80	Marginal
Falco biarmicus	Lanner Falcon	4	Moderate decline	168	
Limosa lapponica	Bar-tailed Godwit	4	Moderate decline	228	Marginal
Eremophila alpestris	Horned Lark	4	Moderate decline	6,556	

Scientific name	English name	Priority	Overall EU27 trend 1990-2000	Average EU27	Reason for downgrad
Pterocles orientalis	Black-bellied Sandgrouse	4	Moderate decline	7,085	
Eudromias morinellus	Eurasian Dotterel	4	Moderate decline	8,405	
Turnix sylvatica	Small Buttonquail	4	Unknown	1	Marginal
Cursorius cursor	Cream-coloured Courser	4	Unknown	349	
Tadorna ferruginea	Ruddy Shelduck	4	Stable	145	
Pelagodroma marina	White-faced Storm-petrel	4	Stable	105,070	>100,000 p
Gypaetus barbatus	Lammergeier	4	Large increase	127	

Table 5. Justification for downgrading species listed as marginal in the final column of Table 4.

Scientific name	English name	Justification for downgrading	Core range
Emberiza aureola	Yellow-breasted Bunting	Breeds sporadically and only in Finland	Russia
Gavia adamsii	Yellow-billed Loon	Winters very sparsely in Baltic and Atlantic	Norway and Russia
Glareola nordmanni	Black-winged Pratincole	Breeds only sporadically in easternmost EU	Central Asia
Circus macrourus	Pallid Harrier	Breeds only sporadically in easternmost EU	Central Asia
Sitta krueperi	Krüper's Nuthatch	Occurs only on one island in Greece	Turkey and Caucasus
Emberiza cineracea	Cinereous Bunting	Breeds only on a few Greek islands	Turkey and Middle East
Anthus cervinus	Red-throated Pipit	Breeds only in northernmost Fennoscandia	Russia
Fulica cristata	Red-knobbed Coot	Occurs only in southernmost Spain	Africa
Limosa lapponica	Bar-tailed Godwit	Breeds only in northernmost Fennoscandia	Russia
Turnix sylvatica	Small Buttonquail	Occurs only in southernmost Spain	Africa and southern Asia

Conclusions and recommendations

The method developed and presented here relies on a few key pieces of information about each species to prioritise their need for EU level conservation action. It uses a simple but intuitive model for setting priorities (based on importance and urgency), and refines the results by considering the trend and size of each species' EU population, and the extent to which action in the EU has the potential to contribute to improving its fortunes. As such, it provides a logical, transparent, scalable and repeatable framework.

1. Update frequency

To remain relevant and ensure that resources and action continue to be targeted correctly, any prioritisation exercise should be repeated regularly, taking on board the latest information (e.g. updated population and trend data) and new knowledge (e.g. about the extent to which the global population of a species is concentrated in the EU). In 2011, following three years of discussions

between the EC and Member States, a new format and process was agreed for reporting on the status and trends of birds under Article 12 of the Birds Directive. This system is similar to that used for reporting on other taxa under Article 17 of the Habitats Directive, and the reporting cycles for both processes will now be harmonised and take place every 6 years, starting in 2013.

This means that all key aspects of EU biodiversity will now be assessed on a predictable, policy-relevant frequency, allowing progress towards targets (e.g. 2020) to be measured and providing valuable information so that EU policies can be developed or adapted as required. From 2014, the EC will be able to produce EU-level composite reports on the status and trends of all bird species every six years. **These reports will contain almost all of the information needed to re-run the prioritisation exercise above, so it would make logical sense to adopt the same six-yearly cycle for repeating it** (perhaps allowing a delay of one year to re-run it, i.e. starting in 2015).

The only other pieces of information needed are the global IUCN Red List status of each species, and the proportion of the global population or range of each species occurring in the EU. The first of these is no obstacle, as BirdLife International updates the IUCN Red List for birds regularly (reactively on an annual basis, and more proactively and comprehensively on a 4-yearly basis), and the latest version is always available online (http://www.iucnredlist.org). The second is unlikely to change very much between assessments, unless a species undergoes such a dramatic decline/contraction or increase/expansion that the EU's global responsibility for conserving it changes markedly. However, it is possible that improved knowledge (especially from outside the EU) may lead to a reappraisal of the EU's importance for a species.

A much more likely cause of change is the expansion of the EU itself, which could move the goalposts quite considerably and affect its responsibilities quite significantly. The accession of Croatia and FYR of Macedonia seem unlikely to change the current picture very much (although this will need to be examined more closely when the time comes), but the accession of Turkey or Iceland would alter things hugely. **If such accessions will occur shortly after the prioritisation exercise is due to be repeated, then it would be prudent to take steps to ensure that data from the relevant countries is included before setting the priorities for the next six (?) years.**

2. Current priorities

Notwithstanding the fact that some of the data on which this exercise was based are now outdated, this method produces a clear, defensible and manageable set of priorities. It is encouraging that many of the species of global concern listed in priority groups 1, 2 and 3 have already received considerable attention since the mid-1990s, e.g. in the form of EU Species Action Plans (SAPs) and priority funding through LIFE projects[14]. As a result, many of them have stopped declining and are now recovering. Some species that were formerly in this category have even been removed from the IUCN Red List as a consequence, e.g. *Phalacrocorax pygmeus*, *Haliaeetus albicilla*, *Falco naumanni*, *Crex crex*, *Columba trocaz* and *Columba bolli*. These successes suggests that the more 'ad hoc' method used for prioritising species until now worked relatively well, at least for those of global concern.

[14]http://ec.europa.eu/environment/nature/conservation/wildbirds/action_plans/index_en.htm

It is also encouraging that a number of species in Table 4 (e.g. *Numenius arquata*, *Limosa limosa*, *Aythya marila* and *Vanellus vanellus*) have been the subject of EU Management Plans (MPs)[15] for huntable bird species considered to be in unfavourable status. The process of developing these plans took far longer than that for most SAPs, and most MPs have only been adopted in the last few years, so their implementation is now vital if the ongoing (and often rapid) declines of such species are to be halted and reversed.

Nevertheless, Table 4 highlights a number of species in need of urgent attention, some of which are not yet covered by SAPs or MPs, and even more of which are not currently listed as priorities for LIFE funding. These include several species of global concern (some of which, admittedly, have only been uplisted in the last few years), but also some species of EU concern, which could soon become globally threatened if their declines continue and their poor status is not addressed.

To this end, it is recommended that the 56 (i.e. non-downgraded) species in Table 4 are treated as an interim list of top priorities for the development of plans in the next few years (i.e. until 2014). This may not involve many changes for most species, as many are already covered by existing SAPs or MPs, but those for which plans have expired should be reviewed.

To ensure that EU resources flow to those species in greatest need, it is also recommended that the list of species considered as priorities for LIFE funding is revised accordingly. The current list is outdated and does not include some of these species. It does however include some species that fall outside even the 74 species in Table 4 (as well as a number of subspecies – see below).

Of the 42 full species currently listed as priority for LIFE funding, 28 (67%) are also identified as priorities using this method, and should definitely be retained as such. The other 14 full species currently listed should be considered for removal (Table 6). They could be replaced by the 28 full species identified as priorities using this method, 19 (68%) of which are already listed in Annex I.

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

Table 6. Possible changes to list of priority species for action planning and LIFE funding if these results were used for that purpose. Note: full species only (please see below re. subspecies). * *Numenius tenuirostris* is considered most likely extinct.

Additions (n = 28)	**Annex**
Podiceps auritus Horned Grebe	I
Puffinus yelkouan Yelkouan Shearwater	I
Oceanodroma monteiroi Monteiro's Storm-petrel	I
Cygnus columbianus Tundra Swan	I
Branta bernicla Brent Goose	II/B
Tadorna ferruginea Ruddy Shelduck	I
Anas querquedula Garganey	II/A
Aythya marila Greater Scaup	II/B
Milvus milvus Red Kite	I
Melanitta fusca Velvet Scoter	II/B
Clangula hyemalis Long-tailed Duck	II/B
Neophron percnopterus Egyptian Vulture	I
Alectoris graeca Rock Partridge	I; II/A
Burhinus oedicnemus Eurasian Thick-knee	I
Eudromias morinellus Eurasian Dotterel	I
Philomachus pugnax Ruff	I; II/B
Gallinago media Great Snipe	I
Limosa limosa Black-tailed Godwit	II/B
Numenius arquata Eurasian Curlew	II/B
Pterocles orientalis Black-bellied Sandgrouse	I
Coracias garrulus European Roller	I
Chersophilus duponti Dupont's Lark	I
Eremophila alpestris Horned Lark	
Erythropygia galactotes Rufous-tailed Scrub-robin	
Saxicola dacotiae Fuerteventura Chat	I
Sylvia undata Dartford Warbler	I
Ficedula semitorquata Semi-collared Flycatcher	I

Sitta whiteheadi Corsican Nuthatch	I
Deletions (n = 14)	
Phalacrocorax pygmeus Pygmy Cormorant	I
Botaurus stellaris Great Bittern	I
Aquila pomarina Lesser Spotted Eagle	I
Falco naumanni Lesser Kestrel	I
Falco eleonorae Eleonora's Falcon	I
Falco rusticolus Gyrfalcon	I
Crex crex Corncrake	I
Porphyrio porphyrio Purple Swamphen	I
Fulica cristata Red-knobbed Coot	I
Numenius tenuirostris Slender-billed Curlew *	I
Sterna dougallii Roseate Tern	I
Columba trocaz Madeira Laurel Pigeon	I
Columba bolli Dark-tailed Laurel Pigeon	I
Loxia scotica Scottish Crossbill	I

3. Application at the level of sub-species

As requested by several reviewers, there is ample scope to apply this method at subspecies level, and numerous cases where that approach makes logical sense. For example, the Icelandic breeding population of Black-tailed Godwit (*Limosa limosa islandica*) is healthy and increasing, so action and resources should be focused on the declining continental breeding population, *L. l. limosa*.

As a purely illustrative exercise, this method has been applied to all 18 subspecies currently listed on Annex I, nine of which are currently priorities for LIFE funding (Table 7). For most of these subspecies, no official supranational assessment of their threat status has been made, so the results presented here are merely indicative, relying heavily on a few national assessments. **Threat scores have been assigned at the regional scale, rather than the global scale, to avoid any threatened subspecies receiving a higher overall priority score than globally threatened full species**. Based on this very provisional assessment, 12 of the 18 subspecies emerge as priorities, seven of which are already priorities for LIFE funding. However, three of the five subspecies not currently listed emerge as some of the highest priorities, including the most highly ranked, *Uria aalge ibericus*.

Table 7. Provisional results of applying this prioritisation method to the 18 subspecific forms currently listed on Annex I, highlighting those currently prioritised for LIFE funding.

Annex I subspecies or population	Current priority for	Proportion of global	Threat status and source	Priority score
Phalacrocorax aristotelis desmarestii	Yes	50-74%	Near Threatened (2004 Birds in the European Union)	4
Anser albifrons flavirostris	Yes	75-100%	Endangered (2011 draft AEWA species action plan)	3
Accipiter gentilis arrigonii	Yes	75-100%	Endangered (2008 French Red Data Book) *	3
Accipiter nisus granti	Yes	75-100%	Vulnerable (2004 Spanish Red Data Book) *	3
Lagopus mutus pyrenaicus		75-100%	Near Threatened (2008 French Red Data Book) *	4
Lagopus mutus helveticus		50-74%	Least Concern (2004 Birds in the European Union)	-
Tetrao tetrix tetrix		1-24%	Near Threatened (2004 Birds in the European Union)	-
Alectoris graeca whitakeri	Yes	75-100%	Endangered (1999 Italian Red Data Book)	3
Perdix perdix italica	Yes	75-100%	Extinct (1999 Italian Red Data Book)	-
Perdix perdix hispaniensis		75-100%	Vulnerable (2004 Spanish Red Data Book) *	3
Calidris alpina schinzii		75-100%	Unknown (includes 3 separate flyway populations)	-
Uria aalge ibericus		75-100%	Critically Endangered (2004 Spanish Red Data Book) *	2
Columba palumbus azorica	Yes	75-100%	Unknown (no Portuguese Red Data Book available)	-
Dendrocopos major canariensis	Yes	75-100%	Vulnerable (2004 Spanish Red Data Book)	3
Dendrocopos major thanneri	Yes	75-100%	Vulnerable (2004 Spanish Red Data Book)	3
Troglodytes troglodytes fridariensis		75-100%	Endangered (2009 UK Birds of Conservation Concern)	3
Parus ater cypriotes		75-100%	Unknown (no Cypriot Red Data Book available)	-
Certhia brachydactyla dorotheae		75-100%	Unknown (no Cypriot Red Data Book available)	-
Fringilla coelebs ombriosa		75-100%	Endangered (2004 Spanish Red Data Book)	3

Even for some of the subspecies currently listed on Annex I, information is lacking (or not readily available) to assess their priority status. Furthermore, from the few national sources consulted (e.g. the Red Data Books for Spain, France and Italy), it is clear that there are many more severely threatened subspecies than those currently listed. Rather than continuing to accord priority status to subspecies just because they happen to have been added to Annex I during various rounds of accession negotiations, **it would be far better to take a more objective approach**. There are hundreds of different subspecies, flyway populations and other more or less distinct populations in Europe, so it will never be possible to collate data and assess the status of all of them. However, with sufficient resources, it should be possible to **draw up a pragmatic list of sufficiently distinctive forms for which data exist or could be collected** (via Article 12 reporting). An assessment could then be made to determine which subspecies merit priority status and EU action.

Reference: ENV.B.2./SER/2009/0076r

Task 3

REPORT

Data collection for

- **Yelkouan Shearwater *Puffinus yelkouan*,**
- **Cory's Shearwater *Calonectris diomedea*,**
- **Rock Partridge *Alectoris graeca***
- **Jack Snipe *Lymnocryptes minimus* and**

Assessment of their population status

Prepared by

BirdLife International

and

FACE

7 January 2012

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Executive summary

Under contract ENV.B.2/SER/2009/0076r on Scientific and technical assistance supporting species protection under the Birds Directive, an element of the task is producing, approving, monitoring, and updating plans, under which there is a subtask of data collection for four species and assessment of their population status. The aim was to aim was to test/adapt a method to assess population data for species with identified gaps in their knowledge. The idea was to involve stakeholders to reach as far as possible an agreement on the population status assessments and its conservation needs. Therefore, the implementation of this task required the collection and assessment of the available information about the species, examination of its adequacy and availability, its analysis and discussion among experts representing different stakeholder groups and as far as possible, taking into account specific stakeholder interests.

Species selection and methodology for the assessment

The species selected for this task were Yelkouan shearwater *Puffinus yelkouan*, Cory's shearwater *Calonectris diomedea*, rock partridge *Alectoris graeca* and jack snipe *Lymnocryptes minimus*. The species were selected based on the following criteria:

- There should be at least indicative information that the proposed species are declinining and have unfavourable conservation status. For the two marine birds proposed, this evidence is already available from within the EU27 range (hence they are not on the list of species for additional information), but in order to take into account their biogeographic population, it is necessary to examine this evidence beyond the EU27.

- Europe (and the EU) should host a significant proportion of the global population of the species, which would justify its priority for conservation in Europe.

- For the rock partridge the available data from several MS and accession coutries already confirms its ongoing decline (hence not on the list of species for additional information). Through the workshops, additional data will be collected and analysed and a complete picture assembled. As the species is of special interest to hunters, who may have significant role in conservation and monitoring of the population, and is on Annex I organising a joint workshop was deemed appropriate.

- For the jack snipe, the difficulty to assess precisely the current population size and trend arises from its breeding distribution in Northern Russia and its cryptic behaviour during migration through EU territory, limiting the possibilities for monitoring to persons with specialised skills (e.g. hunters and game managers). Again, it is a species of special interest to hunters, who may have significant role in conservation and monitoring of the population and its habitats.

Information collection

A methodology for collection of data for the purposes of a conservation status assessment was developed using an electronic data form. Data was collected between August and October 2011 among over 100 experts.

Expert workshops

Four one day workshops were organised to undertake the assessments, as follows:

- Jack snipe 12 October 2011 Brussels, Belgium
- Cory's shearwater 18 October 2011 Alghero, Sardinia, Italy
- Yelkouan shearwater 19 October 2011 Alghero, Sardinia, Italy
- Rock partridge 28 October 2011 Bolzano, Italy

Results

Draft population status assessments were prepared for four species using objective methods of data collection, analysis and discussion with experts and as far as possible, stakeholders. The production of the status reports was lead by FACE (for jack snipe *Lymnocryptes minimus* and rock partridge *Alectoris graeca*) and by BirdLife (Yelkouan shearwater *Puffinus yelkouan* and Cory's shearwater *Calonectris diomedea*). The resulting population assessment reports were circulated for comments among the workshop participants and other experts. The final draft reports are attached.

The organisers of the four workshops tried as far as possible to identify and involve key stakeholders relevant to the species. To understand better the specific situation of the species, a preliminary stakeholder analysis was undertaken. More systematic effort of identifying stakeholders was tried for the two marine birds. Identification of local stakeholders was done in advance (e.g. fishermen) and to those identified invitations for participation were sent. However, the response rate received was practically zero.

Following the completion of the task, the experiences were summarised in two Lessons Learned documents (attached). These were used in the preparation of other reports under this contract.

Population Assessment jack snipe Lymnocryptes minimus

Background

The jack snipe belongs to the *Scolopacidae* family and of the sub-family *Scolopacinae* which includes woodcocks and snipes. The species is monotypic and has a wide breeding distribution at northern latitudes across Eurasia from northern Sweden and Finland across boreal Russian. Highly migratory wintering in western Europe, Africa, the Middle East, India and south-east Asia. Throughout its range it occurs at low densities and renown for its highly cryptic behaviour.

Declines are thought to have occurred in Central and Eastern Europe during the 19th and most of the 20th century, due to loss and degradation of wetlands (Koskimmes 1993 in Scott 2002), although there is lack of evidence on whether this is a true decline or a shift northwards in the breeding range. Recent evidence suggests the population breeding in Europe is now *Stable* (Waterbird Population Estimates 4th Edition 2006, Delany *et al.* 2009).

Rationale for 2011 Population Assessment

This is not the first occasion that the jack snipe has been subject to investigation at EU level. Previously it was included in an initial list of 26 migratory birds of Annex II of the Birds Directive 2009/147/EC considered to have an unfavourable conservation status by the ORNIS Scientific Working Group. In 1995 on the basis of this list a study undertaken by Ecoscope Applied Ecologists to investigate the measures taken by Member States for these species.

From the recommendations of the resulting report by 'Ecoscope' in 1996 the European Commission designated the French ONCFS (French Wildlife and Hunting Agency) and Danish NERI (National Environmental Research Institute) to elaborate Management Plans for 9 Annex II species including jack snipe.

The first draft of the plan was produced by NERI late 1998 and later updated by a further draft in May 2004 by DDH Consulting (Denmark) and Tour du Valat (France) extending the plan to cover the accession of 10 more Member States. Both drafts encountered the same problem of lack of baseline data on the jack snipe. The plan was not considered a priority for finalisation.

General Habitat information

Breeds in open marshes, floodplains and bogs, in forest tundra and northern taiga. In winter, found in brackish water and freshwater habitats, often a mosaic of moist and waterlogged mudflats with tussocks of vegetation. It prefers soft silty mud. During cold spells often found along river margins and inland spring-fed meadows (Del Hoyo *et al.* 1997).

Morozov (2006) describes the breeding habitat in the Bolshezemelskaya tundra in western Russia as composite peat bogs consisting of extensive palsa mires with up to 1 metre high frost peat mounds or palsas covered by low shrubs, between these palsas are flat fen mires overgrown with sedges, cotton-grass, sphagnum and other mosses. All nests are found in these flat fen mires.

In European wintering areas Olivier (2007) observes that the jack snipe is not only confined to natural wetland habitats and that artificial or anthropic habitats are also used. Such habitats include edges of ditches and canals, ponds and reservoirs, flood storage areas, rice fields, salt marshes and well managed marshes. The four fundamental habitat qualities are as follows; 1 - loose organic or muddy substrate, 2 - soil soaked by fresh or brackish water, 3 - not too dense – 15 to 40 cm high vegetation, and 4 – a mosaic of biotopes generating biodiversity.

Geographic range information

The jack snipe breeds in the subarctic and boreal areas of Eurasia between 55°00'N and 71°00' N. Its breeding range stretches from Northern Sweden and Finland in the west, to Eastern Siberia.

The species is highly migratory, with birds moving south and west to winter in the western maritime countries of Europe (from southern Norway, Denmark and the UK southwards), the Mediterranean basin, sub-Saharan Africa mainly north of the equator, South-west Asia, the Indian subcontinent and parts of South-east Asia (Cramp & Simmons 1983 in Delany *et al.* 2009).

Overall its distribution is extremely large, occurring in three biogeographic areas (Palearctic, Ethiopian and Oriental) covering three continents (Asia, Europe and Africa). This area is delimited as follows;

West by the Atlantic Ocean;

North by Iceland, Scotland, Norway and the Russian coast, up to the mouth of the Kolyma River in the eastern part of Siberia;

East, from the Kolyma River to the shores of the Okhotsk Sea;

South, from the south east of China, Indochinese peninsula, Burma, southern India, Pakistan, Iran, Mesopotamia, in Africa mainly north of the equator but in East Africa south as far as Zambia and in West Africa above 10°N (Olivier 2007). In East Africa, Dodman (2002) considers the jack snipe to be scarcer with only occasional records in Tazania (Delany *et al.* 2009)

Taxonomic notes

Lymnocryptes minimus (Brünnich, 1764)

Order: Charadriiformes, Family: *Scolopacidae,* Sub-family *Scolopacinae* , Genera *Lymnocryptes*.

Note: Sibley & Munroe (1990) understand the *Scolopacinae* sub-family as follows:

- The *Scolopacinae,* a group that comprises of 8 different woodcock species.
- The Gallinagininae, a group which according to Tuck (1972) and the BirdLife checklist of birds of the world (2008), include the genera *Coenocorypha* and *Lymnocryptes.* (in Olivier 2007).

Populations and movements

Waterbird Population Estimates and Stroud *et al.* (2004) recognise two main breeding populations in Western Eurasia, separated by the Urals:

1- a population breeding in Northern Europe, and wintering mainly in Southern and Western Europe and West Africa

2- a population breeding in Western Siberia, and wintering mainly in the South-west Asia and in North-east Africa (south to Tanzania).

Thorup (2006) also treats all the birds breeding in Europe (i.e. west of the Urals) as a single population. (in Delany *et al.* 2009)

Population size

The size of the European breeding population (1) is currently estimated at 'E' >1,000,000 individuals (WPE4 2006), but this is not based on quantitative data.

Due to the behaviour of the species only small numbers are ever detected by the International Waterbird Census (mid-winter counts). Equally estimates of the European population based on national estimates of the breeding population also seem very low. (Delany *et al.* 2009)

Estimates based on hunting bags give much higher estimates. Kalchreuter (2002) estimated some 120,000-150,000 jack snipe are harvested annually in Europe, with an estimated mortality rate due to hunting of 5% giving a total autumn migration population of 2.5 to 3 million, originating from a breeding population of 500,000 pairs.

The current estimate in WPE4 uses the estimate by Kalchreuter (2002) of 500,000 breeding pairs (i.e. *coded range E*: >1,000,000).

This figure is also supported by OMPO who estimate that the global breeding population of the species is in the order of 350,000 to 600,000 breeding pairs (Olivier 2007, Kalchreuter 2003).

Breeding populations

Belarus

Mogin (2002) indicates that the jack snipe is an irregular breeder in Belarus and may represent 150 to 200 pairs, while the core of the main population is staging north east of Vitebsk (in Olivier 2007).

Estonia

20 to 30 breeding pairs (Lõhmus et al. 1998)

Finland

Merikallio (1958) evaluated the breeding population at 11,000 pairs, an estimate that is comparable to the estimate by BirdLife International (2004) of 10,000 to 15,000 pairs. Finland is the most important breeding country after Russia (in Olivier 2007).

Latvia

According to Viksne (1983) nesting is not certain, although Stradzs et al. (1994) are of the opinion that a small breeding population is present of less than 10 pairs. Olivier (2007) notes that the species has not been subject to specific monitoring in Latvia.

Lithuania

Švažas *et al.* (2001) estimate that the breeding population varies between 5 and 20 pairs. The authors also predict that a north east shift in breeding distribution due to climate change will exclude Lithuania from the jack snipe breeding distribution in the future (in Olivier 2007).

Norway

Kålås & Byrkjedal (1981) estimated that in 1976 the breeding population would have been 60 pairs. Mjeelstad & Saeterdal (1986) raised this evaluation to 110 pairs (in Olivier 2007). According to BirdLife International (2004) the breeding population is 1,000 to 5,000 pairs but accepted that no quantitative data available.

Russian Federation

Mineev & Mineev (2003) point out that the jack snipe numbers in Russia, a country which holds 90 to 95% of the total population of the species, are unknown. The authors can only confirm

that the breeding range is very extensive but does not imply that the jack snipe is an abundant species as the breeding pairs are very dispersed (in Olivier 2007).

Sweden

Pedersen (1990) counted 86 pairs in southern Småland. In 1992 the same author estimated 120 pairs for the same area (in Olivier 2007). BirdLife International (2004) estimates 2,000 to 4,000 pairs for the whole of Sweden.

Wintering populations

Within Europe the largest number of wintering birds is thought to occur in the western maritime countries of Europe (Snow & Perrins 1998) with UK and Ireland being the most important (Olivier 2007), holding around 65,000 to 100,000 birds (Del Hoyo *et al.* 1997). According to Glutz von Blotzhiem et al. (1977), and Géroudet (1983), the 2.5°C January isotherm delimitates the northern limit of the jack snipe's wintering area. Oliver 2007 observes that a few birds remain in wintering areas well below freezing in proximity of small rivers or springs with flowing water.

Only a tiny fraction of jack snipe are every recorded during the International Waterbird Census, coordinated by Wetlands international. BirdLife/EBCC (2000) collated national estimates of wintering populations in Europe to give a total of 44,000-111,000 individuals. This excludes any European breeders that winter in Africa, but nevertheless, would seem to be a considerable underestimate (Delany *et al.* 2009).

The jack snipe regularly winters in Morocco, Algeria, Tunisia and Libya, but never in great numbers and always dispersed. A much larger proportion of the population winters south of the Sahara, from Senegal to Sudan (Olivier 2007). There is confirmation of presence in this region but very few estimates of numbers; 10,000 in Sudan (Del Hoyo *et al.* 1997), 8,000 to 9,000 in Senegal delta (G.-N. Olivier, pers. obs.).

Trends

Long-term studies in the latter part of the 20th century suggest stability or slight increase in the number of wintering birds, with some declines due to loss of habitat. For example, habitat change in study areas accounted for a 30% decline during the period 1950-2000 in south west Germany, (Kraus & Krauss 2002). However the authors of these studies state that migrating jack snipe are able to switch to short term micro-habitats, where they are easily overlooked. In the Netherlands, 8 study plots have been monitored over periods of up to 25 years by Gerritsen (results in Kalchreuter 2002). Two plots which ended in 1990 and 1994, exhibited declining trends, due to habitat loss, and out of the six which are still running, five increased and one

fluctuated with slight decline. In France, bag data suggests stable numbers over the last 20 years from CICB (*Club International des Chasseurs de Bécassines*) questionnaires, and a site managed for hunting in Picardie in northern France has exhibited fluctuations with an overall increase from 1959-96 (Olivier 2001).(in Kalchreuter 2002)

Since the work of Kalchreuter in 2002, the monitoring work of the French Snipe Network has shown a relative stability in the numbers jack snipe shot on reference marshes since 2000/01, with a slight decline due to the last two seasons 2009/10 and 2010/11, see fig.1 (Leray *et al.* 2010, ONCFS/FNC/CICB, 2010).

The European breeding population is considered as Stable (Delany *et al.* 2009).

Breeding numbers of jack snipe

Table 1- Population (breeding pairs) estimate by country

Country	1994	2000	2004	Current	Year	Reference
Belarus			150-200			**Mongin 2002**[16]
Estonia			20 – 30			**Lõhmus *et al.* 1998**[1]
Finland			10,000 – 15,000			**BirdLife 2004**
Latvia			(0-10)			**Birdlife 2004**
Lithuania			5-20			**Švažas et al. 2001**[1]
Norway			(1,000 – 5,000)			**BirdLife 2004**
Russia			See note[17]			
Sweden			2,000-4,000			**Birdlife 2004**
Global Total						

Notes:

[16] In Olivier (2007)

[17] Russian Federation: holds 90 to 95% of the global population of Jack Snipe. Due to the extensive and highly dispersed breeding numbers are difficult to estimate (Oliver 2007)

Wintering numbers

Table 2- Population (individuals) estimate by country

Country	1994	2004	Current	Year	Reference
Azerbaijan		(5-1,000)			
Belarus		**0-50**			
Belgium	0-100				
Croatia		(500-1,000)			
Cyprus		(5-50)			
Denmark	2,000-20,000	(100-10,000)			
France	1,000-10,000	(8,000-45,000)			
Germany	100-1,100	(100-1,000)			
Greece	0-100	**10-500**			
Ireland	20,000-25,000				
Italy	1,000-10,000	(100-500)			
Lithuania		(0-50)			
Luxembourg	10-30	**30-50**			
Netherlands	300-300	(250-250)			
Poland		1,000-2,500			
Romania		(50-300)			
Spain	2,000-4,000	(250-1,000)			
Sweden	0-500				
Turkey		(250-1,000)			
Ukraine		(0-50)			
UK	10,000-40,000	1,000-10,000			
Global Total		>12,000			

Notes:

1994: Tucker and Heath (1994)

2004: Birds in Europe (BirdLife International, 2004) – data quality; **Bold** – reliable quantitative data, Blue – well known but poor or incomplete quantitative data, (Bracketed) – poorly known no quantitative data

Conservation and legal status

Global threat status

According to the IUCN Red List the jack snipe, due to its extremely large range does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern. (BirdLife 2009)

EU Birds Directive (2009/147/EC): Annex II part A & Annex III part B,

Bern Convention Appendix III,

Bonn Convention Appendix II,

AEWA status: B2b (Europe)

Hunting information

The jack snipe is listed in Annex II part A of the EU Birds Directive 2009/147/EC and hunting may be permitted in all Member States. Currently within the EU there is an open season in Cyprus, France, Ireland, Italy, Malta, Portugal, Spain (6 regions) and the UK (Northern Ireland only).

Table 5. Information on Hunting

Country	Open season 2011	Annual Bag (Kalchreuter 2003)[18]	Annual Bag (other sources)	Year(s)	Reference / source
Denmark	No season	5,000	n/a		
Cyprus	Nov - Dec[19]	Not reported			
France	21/08 – 31/01[20]	64,000	See section below		
Greece	No season	10,000	n/a		
Ireland	01/09 – 31/01	20,000			
Italy	18/09 – 30/01[21]	15,000	7,000 – 8,000	2010	ACMA - FIDC
Malta	01/09 – 31/01	Not reported	90	2003 -2005	FKNK
Portugal	01/11 – 20/02[22]	10,000			
Spain	12/10 – 31/01[23]	10,000			
UK[24]	01/09 – 31/01[7]				
Other countries including Africa	→	20,000			
Total		154,000	**c. 132,000**		

[18] Based as on estimates from a CICB questionnaire

[19] Cyprus – Nov - Dec, opening varies 1 to 7 Nov (16-19 hunting days - every Wednesday and Sunday).

[20] France – dates may vary in depending on departement

[21] Italy – Jack Snipe is hunted in 15 of 20 Italian regions. Open season 3rd Sunday of Sept to 31 Jan in 13 regions, 1 Oct to 15 Oct in 1 region, 1 Oct to 18 Jan in one region. There are also variable daily bag limits in each region for ducks and waders, which Jack Snipe is included.

[22] Portugal – Daily bag limit of 8 Snipes (Common and Jack Snipe)

[23] Spain – open season varies between regions – Jack Snipe huntable in 6 regions – Aragón, Asturias, Castile-La Mancha, Castile y Leon, Basque Country, Valencia

[24] UK – Northern Ireland only Sept 1 - Jan 31, protected in England, Scotland and Wales

Hunting management

France

The French Snipe network (Réseau Becassines) was created in 2006 under the responsibility of the ONCFS (French National Hunting and Wildlife Agency) in partnership with the CICB (Club International des Chasseurs de Bécassines - International Club of Snipe Hunters) and the FNC (National Hunters Federation). The network aims to monitor the migration and wintering of snipes in France by two means; ringing and analysis of hunting bags from fixed study sites or references marshes.

In total 104 specialist bird ringers have been trained, and each year they ring around 1,500 common snipe *Gallinago gallinago* and jack snipes *Lymnocryptes minimus*. Alongside this activity 100 specialist snipe hunters collect at about 4,500 plumages which are analysed to estimate age and sex ratios in the hunting bags. During the season 2010/2011 3,738 Common snipe and 763 Jack snipe plumages were collected and analysed. Results are published in an Annual newsletter. Between 2000 and 2006 the ONCFS, under the name of the 'Snipe Group' were engaged in ringing activities. During this time the CICB were also monitoring the hunting bags of 30 hunting areas, including the analysis of plumages of 3,000 to 4,000 snipes from both species. In 2006 both groups joined to form the Snipe Network.

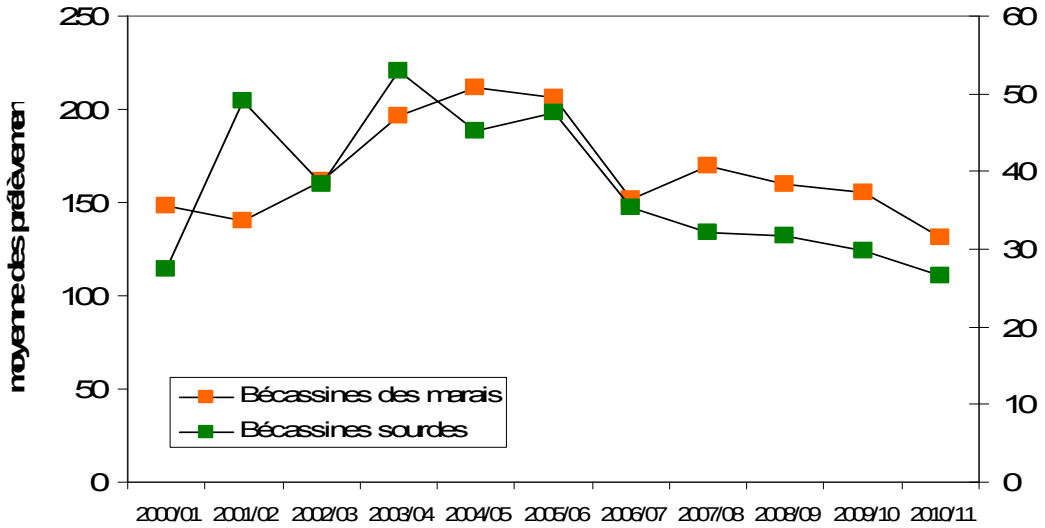

Fig. 1 Average bag per reference site for common snipe (orange squares, left y-axis) and jack snipe (Green squares, right y-axis) for 2000/01 to 2009/10. Source (ONCFS/FNC/CICB 2011)

Note: the low bag in 2010/11 may be partly explained by the harsh winter which limited the number of hunting days.

It should also be noted that the work of the French Snipe Network and that of OMPO[25] in collaboration with scientists from Poland, the Baltic States, Belarus and the Russian Federation has greatly advanced knowledge on jack snipe. Without considerable resources and effort it will always be difficult to precisely estimate the population size of the jack snipe, but the work over the last 10 years has revealed the following points:

- Population estimates (Kalchreuter 2003, Olivier 2007)
- Determination of the population status as Stable
- Criteria for determining age and sex (via external and internal examination)
- Comprehensive knowledge diet (fresh and brackish water)
- General determination of its ecological requirements, including inventory of habitat types as listed under the Habitats Directive
- Study of breeding habitats in Russia, in the Baltic States and Belarus
- Study of migratory movements and of distribution range
- Estimate of hunting harvest rate < 5%
- Comprehensive study of wetland planning corresponding to the specific ecological niche of the jack snipe.

Italy

A new project 'Beccaccino e Frullino' on common and jack snipe has been established by FIDC (Federazione Italiana della Caccia). The project will collect information from hunters in Italy with the use of a dedicated snipe bag record booklet which will record; number of snipe sighted, number shot, number of hunting days, number of hunters per hunt. The aims of the project are to:

- In the long-term to create a data bank on trends in distribution and movements of the Common and jack snipe
- Analyse samples from Common and jack snipe
- Collection of bag data for the analysis of trends in snipe hunting in Italy

[25] **OMPO – (**Migratory Birds of the Western Palearctic) - European Institute for the Management of Wild Birds and their Habitats, is an International NGO committed to the scientific study of Palearctic migratory birds on their overall distribution range in Africa-Eurasia, and providing knowledge for their management and their sustainable use. In 2007 Guy-Noël Olivier published a monograph 'The Jack Snipe', published in French and English, which not only provides a synthesis of research to date, but details the experience of managing a marsh for snipe in north-east France for almost 50 years.

- Understand the possible causes for the variations in migratory patterns and the variations in samples during migration

Early results from the 2010/11 hunting season show that the ratio of common snipe to jack snipe in the hunting bag is similar that that observed in France (around 18%).

Threats

HABITAT

Breeding sites are fairly well protected in Russia due to their inaccessibility. Global warming may have an influence in the future, causing perhaps a shift north in distribution. In the EU habitat loss poses a threat due to; drainage and/or afforestation of wetlands (e.g. poplar plantations), land conversion of wet meadows, and lack of management of wetlands to create suitable mosaic of micro-habitats and regulate hydrology.

The jack snipe is a dispersed species at all times of the year, rarely if ever congregating at particular sites. As no important sites can be indentified the key site approach for conservation is not considered appropriate (Delany *et al.* 2009).

HUNTING

Kalchreuter 2003 considers hunting harvest to be low by, less than 5% of autumn population in Europe and Africa. The figure for harvest rate was estimated as follows:

Data provided by the Euring Data Bank indicate that about 13,500 jack snipes had been ringed during the 20th century, yielding 330 recoveries. To estimate the ring recovery rate in hunting bags, we only considered ringing centres from which ring recoveries were almost exclusively reported shot. Of 6,560 birds ringed in such centers, 168 rings (2.5%) had been recovered "shot". Recovery rate before 1980 was more than twice as that during the 1980's and 1990's (3.5% vs 1.5%, P <0.0001), indicating lower hunting intensity during the latter period. Because the number of ringed birds shot might be 2-3 times higher than indicted in the bags, these data suggest that up to 10% of the population was harvested before 1980 and less than 5% after 1980. (Kalchreuter 2003)

The reason that ringed birds shot might not be reported is firstly that not all shot birds are recovered, and secondly not all rings recovered are reported to ringing centres. Reporting rates of recovered rings may vary depending on the interest of hunters. Studies in North America (Conroy & Blandin 1984, Nichols et al. 1991) found reporting rates of more than 50% when reporting was rewarded, and about 30% with no reward. These results are in line with those of

Fog (1965) on Mallard in Denmark, 56% returns when hunters were informed of the study and 23% without information. On the assumption that Snipe hunters are relatively interested in ring projects, it might be considered that at least half of ringed birds shot are reported. If lost birds are accounted for than it can be considered that 2 to 3 times the number of reported birds have been shot (Kalchreuter 2003).

Community financial support

There are no known EU funded projects on jack snipe.

Conservation Actions Underway

There are no targeted conservation actions for this species at Community level other than the conservation of habitats used by the jack snipe listed as of those of community interest in Annex I of the Habitats Directive (92/43/EEC).

Natural Habitat types listed in Annex I of the Habitats Directive 92/43/EEC considered as important for the jack snipe (adapted from Oliver 2007 & INPN)

1. **COASTAL AND HALOPHYTIC HABITATS**
13.**Atlantic and continental salt marshes and salt meadows**
1310 Salicornia and other annuals colonizing mud and sand
1320 Spartina swards (Spartinion maritimae)
1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
1340 * Inland salt meadows
14.**Mediterranean and thermo-Atlantic salt marshes and salt meadows**
1410 Mediterranean salt meadows (Juncetalia maritimi)
4. **TEMPERATE HEATH AND SCRUB**
4010 Northern Atlantic wet heaths with Erica tetralix
4020 * Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix
64. **Semi-natural tall-herb humid meadows**
6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)
6420 Mediterranean tall humid grasslands of the Molinio-Holoschoenion
6440 Alluvial meadows of river valleys of the Cnidion dubii
7. **RAISED BOGS AND MIRES AND FENS**
71. **Sphagnum acid bogs**
7110 * Active raised bogs

7130 Blanket bogs (* if active bog)
7140 Transition mires and quaking bogs
7150 Depressions on peat substrates of the Rhynchosporion
72. **Calcareous fens**
7210 * Calcareous fens with Cladium mariscus and species of the Caricion davallianae
7220 * Petrifying springs with tufa formation (Cratoneurion)
7230 Alkaline fens
7240 * Alpine pioneer formations of the Caricion bicoloris-atrofuscae
9. **FORESTS**
91. **Forests of Temperate Europe**
91D0 * Bog woodland

Conservation Actions Proposed

- A better application of management of wetlands at international scale
- Mechanisms to stop afforestation of wetlands and limit loses of permanent meadows
- Strict application of the Habitats Directive (92/43/EEC) for the conservation of important wetland habitats.
- Stronger legislative protection of groundwater from excessive agro-chemical usage and use for irrigation.
- Incentives for extensive grazing by cattle on wet meadows
- Community funding to restore wetlands, wet meadows and permanent pasture
- Use of non-toxic shot for hunting in wetlands.
- Stop the hunting season for snipes during prolonged frost and temperatures below -6°C.
- Adopt bag limits where jack snipe is hunted

Research and Monitoring needed

Snipe species due to their secretive nature are difficult to census by direct observation, and this is particularly true for the jack snipe which are very reluctant to take flight, preferring to remain motionless in dense vegetation. As a result it is overlooked by conventional census techniques.

Monitoring in breeding areas

Ideally breeding bird surveys in Russia would offer the best option for estimating population levels and trends. Males birds can be detected during display flight/singing which lasts around one month, although this occurs at low density (1 or 2 breeding pairs/km2 in prime habitat). Due to logistical problems and lack of financial resources for such work, a more realistic option

is to focus on monitoring in wintering and passage in Europe. There the only available large scale sampling method available is based on collection and reporting of wings from hunters.

Monitoring in wintering areas

While France is not considered as an important wintering zone for the jack snipe it is the focus of monitoring by those with interest in snipe hunting. Besides France, research by Gdansk University has recently indentified a group of external measurements that can be used to reliably sex jack snipe staging or wintering in north east Poland (Sikora & Dubiec 2007). The majority of birds are thought to winter in low densities in the Sahel and East Africa, but conditions and behavior of jack snipe during winter make surveying impractical.

Recommendations:

- Population size
    - Monitoring of the breeding population
        - Set up a network of observers in Russia
        - Develop ringing programme in Fennoscandia and Russia
    - Monitoring of the wintering population in the whole wintering area
        - Use of GLS (GeoLocation System) tags as a complement to ringing in wintering areas.
        - Intensify ringing in staging and wintering areas
    - Incite hunters to return rings
- Methodology
    - Develop isotopic signature of bird's unmoulted feathers
    - Promote studies such as those carried out by the French Snipe Network in other countries and develop a scientific monitoring network (e.g. age ratio of bagged birds)
    - Increase the number of reference hunting territories in Europe and Africa
    - Develop plumage collection in Europe
- Ecology
    - Investigations into the use of isotopic signatures to identify breeding origin of birds or through genetic studies
    - Carry out research on breeding biology
    - Further investigation of jack snipe diet
    - Study genetic variability of hunted birds
- Threats
    - Precise estimate of annual hunting bags - international survey of bag statistics and trends in all countries where this species is hunted
    - Develop and implement severe weather protocols for temporarily closing of hunting during prolonged frost (already in place in France and UK).

    - Survey of breeding and wintering habitat trends
        - Draw a European map of suitable habitats from satellite imagery and model trends for the coming decades
- Demographic parameters
    - Study of survival rates, both adults and juveniles
    - Study of recruitment rates
    - Confirm age of 1st reproduction; probably one year old
    - Investigate % of reproductive females
    - Advance general knowledge of population dynamics
    - Study of predation rates on nests and broods

Conclusions – next steps

There is no evidence for a decline in jack snipe numbers, and at global level it is considered as having a stable population. Therefore the jack snipe should not be priority for an EU recovery plan. Alternatively a plan or strategy for the conservation for wetlands and perhaps more importantly intermediate wetland habitats (e.g. wet meadows) would be more practical and would benefit a wider range of species.

In a similar vein, given the difficulty of monitoring this species and the lack of resources to conduct such work, efforts could be directed towards the monitoring of habitats suitable for jack snipe. This would require a good inventory of habitat types and criteria. Fortunately a study of habitats has been partially developed by OMPO and the French Snipe network.

Monitoring of hunting bags, including analysis of age and sex ratios from plumage can offer indicators of population demography and annual breeding success. The work done in France could be repeated in other countries.

Contributors

Yves Ferrand (ONCFS), Patrice Février (CICB), Guy-Noël Olivier (OMPO), Daniel Tramontana (FIDC), Ian Burfield & Boris Barov (BirdLife International). One day workshop was organised by FACE on 12 October 2011 in Brussels.

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Population assessment rock partridge *Alectoris graeca*

Background

The rock partridge *Alectoris graeca* belongs to the Phasianidae family of birds which includes partridges, quails and pheasants. It is endemic to Europe, occurring only in the Alps and mountainous parts of Italy, through the Balkans and Greece. Three races of *Alectoris graeca* occur in Europe. The nominate race *graeca* inhabits the Balkan Peninsula with an estimated population of c. 20,000-50,000 breeding pairs. The race *saxatilis* inhabits the Alps and continental Italy - its population can be estimated at 18,000-28,000 breeding pairs. The race *whitakeri* inhabits Sicily only (no reliable population estimates)

It underwent a large decline 1970-1990 (Tucker & Heath 1994), although certain populations – notably ones in the Former Yugoslav Republic of Macedonia and Greece – were reportedly stable or increased during 1990-2000. In most other countries holding significant populations, however, declines were reported. More recently the European breeding population of rock partridge was last estimated at <78,000 pairs (BirdLife 2004), noting the poor quality of information from many range states and the absence of any data from Bosnia.

Rationale for 2011 Population Assessment

To date no EU Management Plan has been drafted for the rock partridge, although in 1994 the EU provided financial support (DG11 contract N°6610 (90) 6686) for Restoration Plans for certain galliformes including the rock partridge which were published in French with English summaries in Game and Wildlife, the journal of the ONCFS (French Wildlife and Hunting Agency).

The rock partridge has been identified as having an unfavourable conservation status in Europe in both SPEC assessments by BirdLife International (Tucker and Heath 1994, BirdLife 2004), on the grounds of populations declines reported since the 1970s. In both assessments, the species' status could only be assessed provisionally, owing to the lack of sufficient quantitative data across much of its range.

The preparation of the assessments will be supported by a one-day workshop. While focusing on a technical level an important objective is ensure transparency and endorsement by all concerned parties (relevant experts, Member State, international organizations and other stakeholders) as a spring board for further progress in the development of 'recovery' plans.

Identification

Both sexes have identically plumage, back grey brown, breast grey blue, underparts pale reddish with black bars across the sides. The key difference from the other *Alectoris spp*. is the pure white bib with a well defined black collar extending across the eye to the base of the upper mandible. Also the streak behind the eye is much less defined than that of the Chukar *Alectoris chukar*. In areas where both Chukar and rock partridge are present the best method for field identification is the difference in song to distinguish individuals. To detect hybrids in the field by song is more difficult and it is necessary to take recordings for more careful analysis.

The rock partridge is the largest of the partridges in Europe, cocks weigh 520 to 770 grams, and hens slightly lighter at 460 to 650 grams (Bernard-Laurent 2008).

Alectoris graeca whitakeri differs in that its back is more warm brownish olive with darker underparts more saturated in colour and creamy white bib. The key difference is the width and pattern of the black collar and visible ear-covert stripes (Corso 2010).

General Habitat information

The rock partridge utilises a variety of habitats and different altitudes, up to 3000m in the Alps and almost down to sea level in Sicily and Greece. Generally they prefer open, mountain habitats with grassy patches, low scrub or scattered conifers.

Geographic range information

This European endemic partridge inhabits both low-altitude rocky steppes and mountainous open heaths and grasslands. It occurs in the Alps, the central and southern Apennines, Sicily and the Balkan Peninsula (Bernard-Laurent & de Franceschi 1994). It is native to; Albania; Austria; Bosnia and Herzegovina; Bulgaria; Croatia; France; Germany; Greece; Italy; Macedonia FYROM; Montenegro; Serbia; Slovenia; Switzerland (BirdLife International 2009).

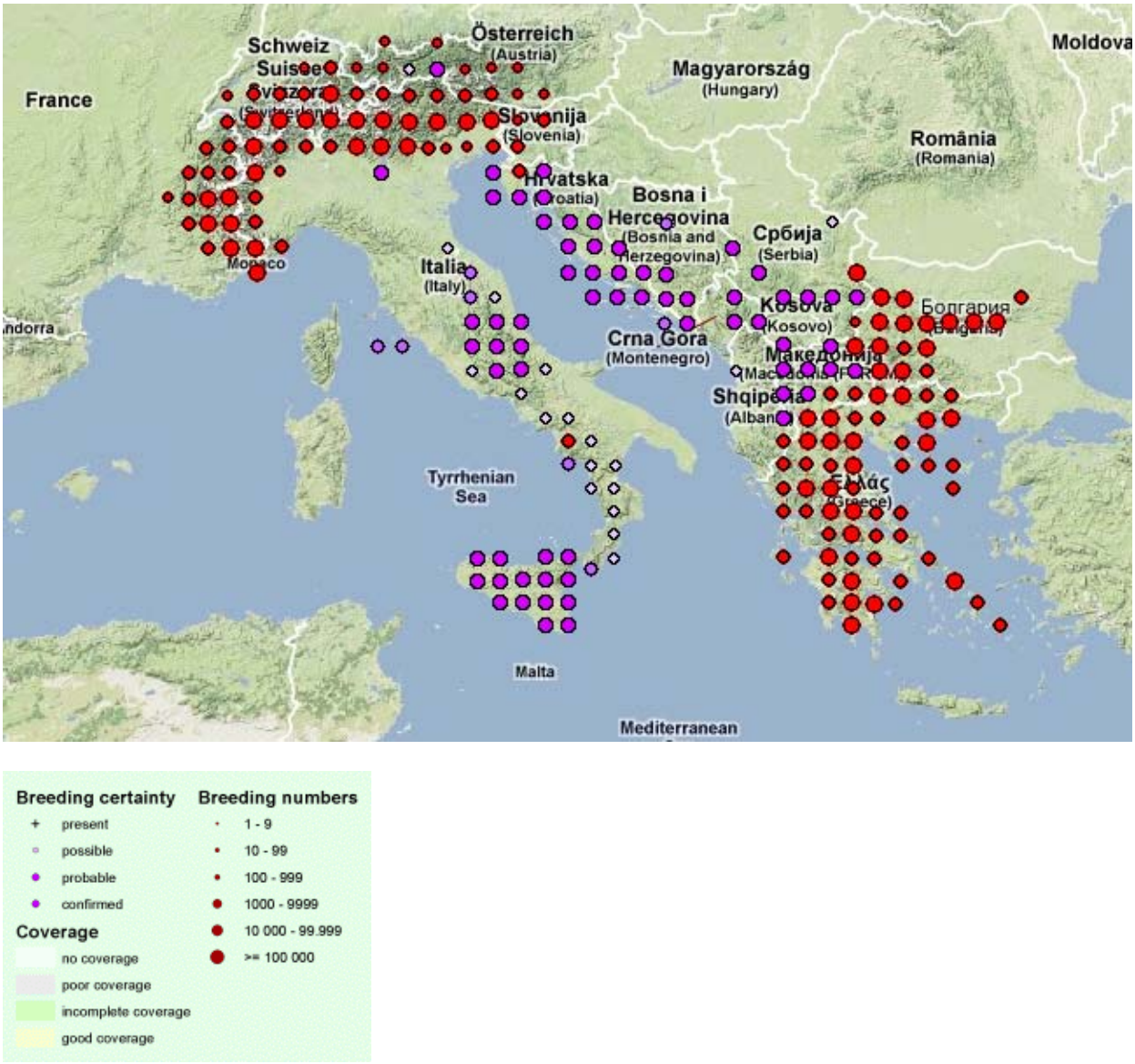

Fig. 1. Source: EBCC (1997) – (note: this map requires to be updated for some countries (e.g. Serbia))

http://www.sovon.nl/ebcc/eoa/?species1=3570&species2=&species3=&species4=

Taxonomic notes

Alectoris graeca graeca – The nominate race breeds in Greece (and Ionian islands), the Republic of Macedonia, south-western Bulgaria and possibly Albania (Cramp 1980, Snow & Perrins 1998). According to Vaurie (1965), this is the taxon found throughout the species' breeding range except for the Alps and Sicily.

Alectoris graeca whitakeri - endemic to Sicily

Alectoris graeca saxatilis - ranges from the Alps (Austria, France, Italy, Slovenia and Switzerland) north-west to Croatia, Bosnia and Serbia and possibly south towards Montenegro (Cramp 1980, Snow & Perrins 1998).

Alectoris graeca orlandoi - first described by Priolo (1984) for the central and southern Apennines. This division is not recognized by Cramp (1980) and Snow & Perrins (1998) who consider the population in this area inseparable from *saxatilis* or even nominate *graeca.* (in Corso 2010)

Taxonomic status of the rock partridge in Croatia

Need for clarification?

Birds of the Western Palearctic states that: "Populations of Apennines and north-west and central-west (former) Yugoslavia south to Montenegro inseparable in colour from *saxatilis* (as also some specimens from Lake Ohrid in Yugoslavian Macedonia), but those from south-east (former) Yugoslavia, south-west Bulgaria, and perhaps Albania like nominate *graeca*."

More directly, Madge & McGowan (2002) state that *A. g. saxatilis* occurs in Alps, Italy and former Yugoslavia, intergrading with the nominate subspecies in W Bulgaria and Macedonia FYROM. The same division is supported by del Hoyo et al (1994), where birds from (former) western Yugoslavia are considered as *saxatilis*, while those from SE Yugoslavia belong to *graeca*.

Contrary, Vaurie (1965) restricted saxatilis to the Alps and included other Italian and (former) Yugoslavian populations within nominate *graeca*. Similarly, Matvejev & Vasić (1973) restricted saxatilis to Slovenian Alps, while including other populations to nominate graeca.

Genetic analysis of specimens from the bird skin collection of the Institute of Ornithology and Croatian Natural museum, collected prior to introduction of Chukar may offer an answer to this question.

Movements

It is sedentary, but is known to make some local movements. In France annual movements of up to 25 km have been observed. These movements, almost migratory in nature, take place in October and in March between high altitude summer/breeding areas and lower altitude wintering quarters (Bernard-Laurent 2008).

Population size and trends

Albania

The Rock partridge has been selected as a species subject annual monitoring programme of wild fauna in Albania coordinated by the Environment and Forestry Agency, and carried out by the Research Centre for Flora and Fauna, Faculty of Natural Sciences, Tirana University. According to the latest survey results from spring 2010, the national population is 30,280 individuals, compared with 38,109 individuals from the survey in 2008. Source: Directory of Biodiversity, Albanian Ministry of Environment, Forest and Water.

Note: This estimate is considered by some experts in Albania to be greatly over estimated, and suggest a strongly declining population trend since 1995.

Austria

900-1200 pairs estimated in 1998-2002 (BirdLife 2004).

In the Tyrol region in 2010 there was an estimated 250 pairs, with an unclear population trend, but evidence of a strong increase in habitat loss and increasing disturbance.

Bosnia and Herzegovina

The population is estimated by Sučić 2008 at 10,000 pairs. Historically the species is thought to have strongly declined. During the survey of one site in the Tušnica Mountain from 2000 to 2007 an increasing trend was observed, but it is not known if this is reflected elsewhere in country.

Bulgaria

The most recent estimate by Iankov (2007) is for 800-1,500 breeding pairs, with decreasing trends for numbers and distribution, and the species is classed as Endangered in the Red data book. The density is estimated at >10 and < 15-20 breeding pairs per each occupied 10x10km square, with higher densities at higher altitudes. Historically widespread in the mountainous regions of the country (except in the SE), first indications of decline occurred in 1960s (Dontchev, 1961). As possible reasons for the decline the authors mention in the past unsustainable hunting pressure and possible hybridisation and/or transfer of pathogens by released Chukar *Alectoris chukar*. Presently, the decline of traditional mountain agriculture and especially the disappearance of graminaceous crops in the mountains.

Croatia

The rock partridge is widespread in coastal mountains of Dinaric Alps from Istria (Učka Mt.) to southernmost Dalmatia and border with Montenegro. In the northern Adriatic it is present only in the narrow coastal area. South from Velebit Mt. (easternmost Lika) and Dalmatia it inhabits inland habitats up to 60 km from the coast. It also inhabits on some larger islands (e.g. Krk, Cres, Pag, Hvar, Brač). The strongest populations are on the Dinara, Velebit and Biokovo Mt. Altitudinal range is from sea level up to the highest peaks (1800 m). It can be quite numerous on habitats cleared by forest fires and on inaccessible steep slopes.

The most recent population estimate of the Croatian population is 6,000 – 10,000 pairs (Institute of Ornithology 2010). The previous population estimate of 10,000 to 15,000 pairs (Radović *et al.* 2005) was overestimated. The recent population trend is the most probably decreasing. At the regional level it is classified as Near Threatened (Tutiš *et al. in print*).

The Croatian Ministry of Regional Development, Forestry and Water Management – Directorate for Hunting estimates total stock of 12,500 to 13,500 birds (for years 2008-2011) with estimated annual growth of 7,000 to 8,000 birds. These estimations are given only for the hunting grounds (National Parks and other non-hunting areas are not included). Between 5,600 and 7,400 birds were hunted per hunting season. According to the same source, population of Chukar is estimated to 80 to 270 birds with decreasing trend and with c. 50 birds hunted per season. However, all those estimates should be taken with caution, as they were not based on detailed ornithological studies.

Local extinctions are often reported in popular hunters publications (Lovački vjesnik, Dobra kob) but no overall review exists.

The habitat loss is considered to be the most important threat to the rock partridge in Croatia. The decrease of the livestock number and the ban of goat outdoor grazing (introduced in Croatia in 1954) caused natural succession and therefore the loss of open habitat. After The Independence War this process even accelerated due to the depopulation and a decrease in livestock numbers.

Recently, large numbers of Chukars have been released in the natural range of the rock partridge especially on lower elevations and on islands. The presence of Chukars and hybrid birds may lead to the overestimation of the rock partridge population.

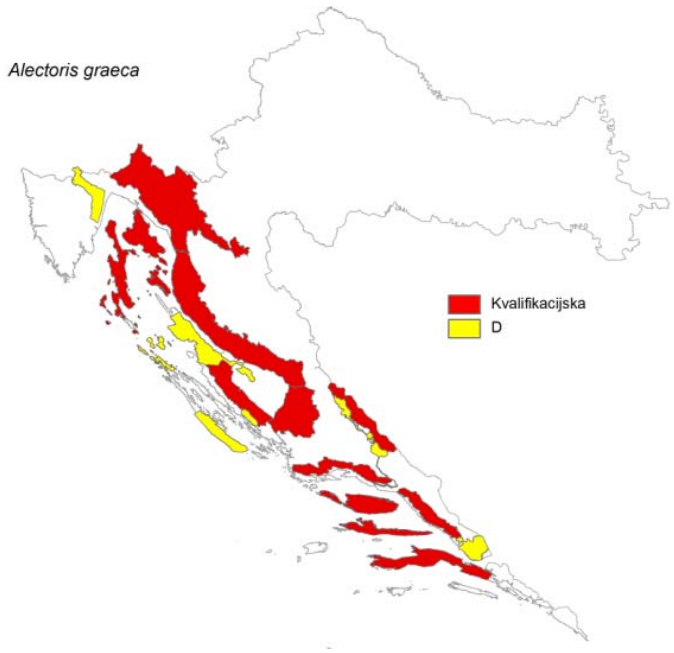

Fig. 2 Distribution map of rock partridge in Croatia (source: Institute of Ornithology)

France

Results from the monitoring work of the OGM (Observatoire des galliformes de montagne) managed by the ONCFS for the period 2000 – 2009 give an estimate of the French rock partridge population of 3570 males. This can be translated into an estimate of 3,000 to 4,000 breeding pairs.

From the 32 reference sites distributed throughout the French Alps, the densities in spring varied from 0.5 to 4 singing cocks per 100 ha. The variations were not only observed between sites but also between years. These densities are comparable with those from other observations within the Alps.

Annual surveys between 1990 and 2009 have shown a stable trend in densities in the Alps. However fluctuations occurred during this 20 year period, which can be summaries as; a decline from 1990 to 1997, an increase from 1998 to 2007, and a decrease from 2008 to 2011. Synchrony was detected between sites belonging to the same bioclimatic region. (Bernard-Laurent, presented at Workshop Oct. 2011)

From 2000 to 2009 the rock partridge was present on 345 communes distributed over seven 'departements' in the French Alps. During this period the distribution range has remained more or less stable in comparison with period 1990 to 1999 which showed a decrease of 3 %. However between the 1950s and the 1990s, the distribution range decreased by 42 %, mainly on the western fringes of the distribution range.

In the northern Alps and northern lower-alps there have been increases in distribution range and regression in parts of the lower southern Alps, notably in the Castellane region (Buffet & Dumont-Dayot 2011).

These results stem from the work of the OGM and more targeted research of the CNERA programme over the last 25 years. The techniques employed are described in Bernard-Laurent (2008), Bernard-Laurent (1984).

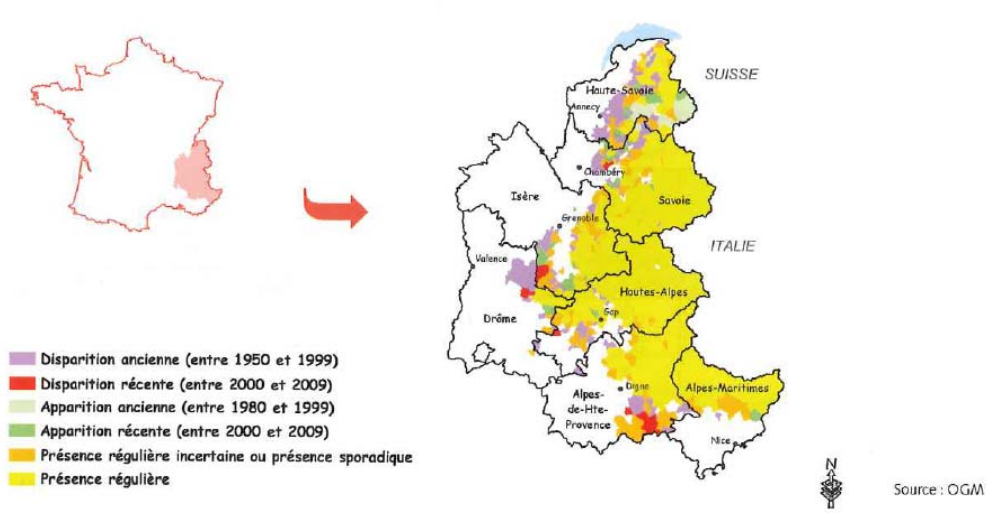

Fig. 3

(Fig. 3) Trends in distribution of rock partridge for the periods 1950 to 1999 and 2000 to 2009. Source Buffet & Dumont-Dayot (2011)

Germany

Extinct in Germany, but occasional sightings in Allgäu Alps - http://www.lbv.de/ (news item 26 July 2011)

Greece

A recent study (2005-2010) in central Greece (Sterea Ellas) has been conducted using the distance sampling technique (Buckland *et al.* 1993) to calculate population density, mean flock size and encounter rate. The overall population density (D = 0.284 ind./ha; 95% CI: 0.166-0.449) remained stable among years (P > 0.05). During the study years, densities were always higher in summer (0.426) than in spring (0.142) due to recruitment, but not significant. Similarly, rock partridge densities were slightly higher in non-hunting zones than in hunting zones, but this was not significant. The population density was positively correlated with altitude, and associated with habitat type. rock partridges were counted frequently in higher altitudes with less vegetation cover and more rocky areas.

Results of the study in the Sterea Hellas region of Greece estimate a population size of 29,000 pairs of rock partridge (min. 20,000 – max. 37,500). As this region contains 25% of suitable habitat for rock partridge in Greece, the national total can be extrapolated to 113,000 pairs (min. 78,000 – max. 147,500). (Bontzorlos *et al*, 2011, in press)

Italy

10,000 to 20,000 pairs estimated in 1998-2002 (BirdLife 2004)

No new national population estimate is known. The recent Italian National Red List assessment considers the rock partridge as vulnerable VU (LIPU – FRV report, 2009).

At the rock partridge workshop in Bolzano, 28th October, results of monitoring schemes were presented by hunters from regional or provincial associations from the alpine region of Italy. In terms of distribution the rock partridge is present in 21 of 24 (absent Savona, Gonzia or Trieste) of the Italian Alpine provinces (from 7 Regions). Censuses take place in almost all provinces but are not collected centrally. For some of the provinces or certain areas within provinces long term data on population density estimates are available (e.g. Val Brembana, Bergamo 1997-2011).

Some of the results presented are summarised below:

Alto Adige (Province of Bolzano) – Rock partridge is present in 28,700 ha of the province with the main concentration in the central western parts. Observations collected in the spring from 2007-2011, show that forming of pairs and breeding takes place below 2550 m on east to southwest facing slopes. Within the 28,700 ha distribution, about 21,380 ha are used in the spring. Average spring density is 2.9/km2, leading to a population estimate of 892 individuals during the period 2008-2011 (Clementi *et al.* 2011).

Province Trento - Rock partridge is present in 56,000 ha of the province with an estimated population of 1,700 to 1,800 individuals in 2010. Management guidelines have been produced at provincial level to improve habitat quality for rock partridge. (A. Brugnoli, Associazione Cacciatori Trentinui, at workshop Oct 2011)

Province Catinia, Sicily – average population density 1.5 /km2 (0.88 – 2.18). The species is considered fragmented with localised extinctions recorded (Amico 2006).

In the alpine region the ratio of young to adult birds is used to produce a Reproductive Index. Figure 4 gives an overview for 2010 (source UNCZA).

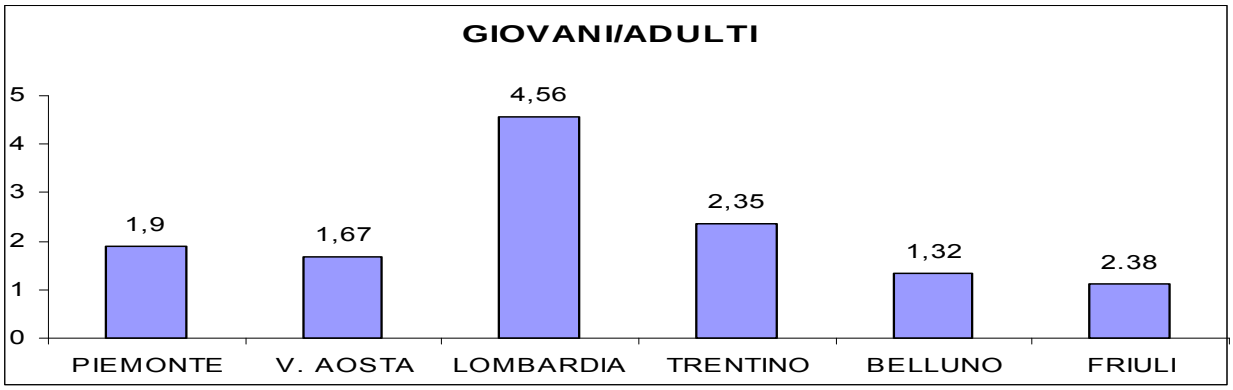

Fig. 4

In terms of population trends, bag data indicate a strong historical decline in the region, but availability of population monitoring data makes it difficult quantify the decline within the scope of this paper.

Macedonia FYROM

5,000-15,000 pairs estimated in 1990-2000 (BirdLife 2004), however this estimation has been lowered to 2000-5000 pairs (2002-2011), due to the improvement of data (Velevski et al, in print). Although precise quantitative data are lacking for this period, the frequency of findings at regularly monitored sites within IBA network has not decreased.

The species is distributed in suitable habitats throughout the country, from 50 to ca 2300 m a.s.l. About 40-50% of the population is covered by 10 IBAs, 2 of which in IBA category B2 (significant population), 6 in A3 (biome restricted species for the Mediterranean) and 2 in A3 and B2. (Velevski et al, in print)

Montenegro

The Centre for Protection and Research of Birds of Montenegro (CZIP) has engaged in field surveys for rock partridge in 2010 and 2011 with the use of pointing dogs trained for the purpose. Survey areas include the Durmitor National Park and the Podgorica area which is considered to be optimal for rock partridges. On the basis of this research it is estimated that there are a maximum of 1,300 breeding pairs (Saveljić et al. 2011). CZIP consider the estimates reported by hunters organizations to the Ministry of Agriculture and Forestry to be overestimated. This is of concern and requires clarification as these figures represent the basis of hunting management plans.

Serbia

Rock partridge inhabits southern, mountainous parts of Serbia. The largest numbers are present on Šara and Prokletije mountain ranges (Dinaric Arc) in Kosovo. These two areas hold up to a quarter of the national populations. Other important sites are Kopaonik and Pčinja region in southern Serbia, Giljeva, Jadovnik, Ozren, in south-western Serbia, Tara, in western Serbia, Suva Planina, Stara planina, Jerma Gorge, Sićevačka gorge and Rtanj in eastern Serbia. There are historical records from Đerdap (Iron Gate) but it seems that the species is extinct there. The Serbian population was estimated to 2000-3000 breeding pairs in 2003 (Puzović *et al.* 2003), with negative trend of 20-30% in the period 1990-2003. More recent estimations (Puzović *et al*. 2009) are of 1,000-1,500 breeding pairs. Of this estimated population 52% are present in IBAs (520-770). However, there is no systematic research of this species in Serbia and all given population numbers should be taken with caution.

Slovenia

The Rock partridge is being monitored as part of a project on target species in Slovenian SPAs which has been running since 2004. As yet further information is not available.

Switzerland

rock partridge in Switzerland is a species that exhibits strong fluctuations. The population trend between 1990 and 2010 was negative and the species has decreased by about 30 % in this period (Niklaus Zbinden – Vogelwarte – Swiss Ornithological Institute *pers. comm.*).

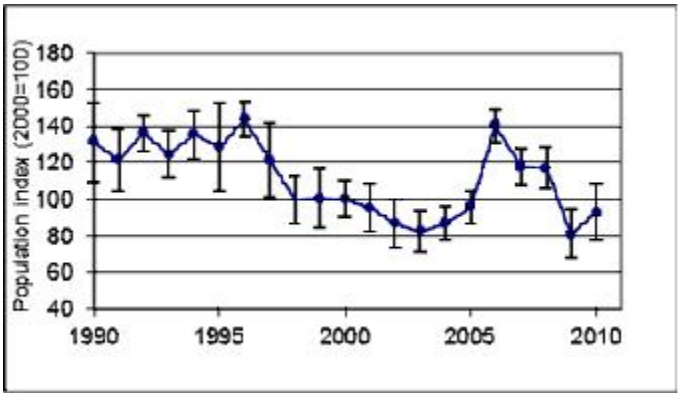

Fig. 5. Source: Vogelwarte – Swiss Ornithological Institute

Prior to this recent decline an increase was observed in distribution and numbers between the two surveys periods; 1972-76 and 1993-96. In the survey during the 1990's, 195 grid squares were found to be occupied (mainly Valais, Tessin and Grisson) compared with 136 occupied grid squares during the 1970's. (Schmid *et al*. 1998)

Global population size

The European breeding population was last estimated at <78,000 pairs (BirdLife 2004). This figure may need to be revised considering evidence that population in Greece is much higher (x10) than previously reported. This estimate is based on 5 years monitoring work in the region of Sterea Hellas, which accounts for 25% of the Partridge Habitat in Greece. It is supported by hunting bag statistics for the region and indices of abundance collected throughout Greece.

Unfortunately this is situation is not reflected elsewhere in the range. In Albania a larger population has been reported (c. 30,000), but some experts question this figure. Concerns of overestimates have also been raised in Montenegro.

Figures for Bosnia-Herzegovina are now available which were missing in 2004, and revised estimates for Croatia, France, Montenegro, Serbia and Macedonia FYROM. In Italy population density are recorded at local level by provincial hunting association (and presented in this paper for alpine provinces and one province in Sicily), but a revised national figure is not available.

Global breeding population trend

Its European breeding population underwent a large decline between 1970 and 1990. Although certain populations – notably sizeable ones in the Former Yugoslav Republic of Macedonia and Greece – were stable or increasing during 1990 to 2000, the species continued to decline across most of the European range, and underwent a moderate decline (>10%) overall. (BirdLife International 2004)

The situation regarding trends remains similar to that reported in 2004. Population trends are stable in Greece and France, but there are reports of declines throughout the rest of the range. New information is from Macedonia FYROM indicates a lower population level, but this may be due to a previous overestimated population rather a real decline.

Table 1- Population (breeding pairs) estimate by country

Country	1994	2000	2004	Current	Year	Reference
Albania			1,000 – 3,000	30,280 indiv[26]	2010	Albanian MoE
Austria			900-1,200			
Bosnia and Herzegovina	86,000[2]		Present	10,000	2008	Sučić 2008
Bulgaria		5,000-10,000	800-1,500	800-1,500	2000-2005	Nikolov et al. 2007
Croatia			10,000-15,000[27]	6,000-10,000	2010	IoO et al. 2011
France	2,000 – 3,000[2]		2,000-3,000	3,000 – 4,000	2000 – 2009	Bernard-Laurent (workshop Oct 2011)
Greece	7,000 – 13,000[2]		7,000-13,000	78,000 – 147,500	2005-2010	Bontzorlos et al. 2011 in press
Italy	13,000-20,000[28]		10,000-20,000			
. Alps	6,000-9,000					
. Apennines	5,000-8,000					
. Sicily	2,000-3,000					
Macedonia FYROM			5,000-15,000	2,000 - 5,000		Velevski et al, in print
Montenegro		3,000 – 4, 000[29]		1,300		Saveljić et al. 2011
Serbia			5,000-7,000	1,000-1,500	2009	Puzović et al, 2009
Slovenia			100-150			
Switzerland			3,000-4,000			
Global Total			40,000 – 78,000			

Notes:

References for 2004 are Birds in Europe – BirdLife International (2004) unless indicated otherwise.

[26] Considered by some experts as over estimated
[27] Radović et al (2005)
[28] Bernard-Laurent, A., de Franceschi, P.F. (1994)
[29] Puzovic et al. 2004

Table 2- Recent and long-term breeding population trend by country

Country	Recent population trend	Year(s)	Reference	Long-term population trend	Year(s)	Reference
Albania	**(-)**	**95-02**	BiE2			
Austria	**(0)**	**98-02**	BiE2			
Bosnia and Herzegovina	**?**	**90-03**	BiE2			
Bulgaria	**-**	**95-02**	BiE2	-	2000-2005	Nikolov et al. 2007
Croatia	**(-)**	**2002**	BiE2			
France	**0**	**90-09**	Bernard-Laurent (2011, reported at workshop)	-	1964-1989	Bernard-Laurent (2008)
Greece	**0**	**05-10**	Bontzorlos et al (2011)			
Italy . Alps . Apennines . Sicily	**(-)**	**2003**	BiE2			
Macedonia FYROM	**(0)**	**90-00**	BiE2			
Montenegro	**-**					
Serbia	**-**	**90-02**	BiE2			
Slovenia	**-**	**2000**	BiE2			
Switzerland	**-**	**90-10**	N. Zbinden (Vogelwarte)			

Conservation and Legal status

Global threat status

According to the IUCN Red List the rock partridge, due to its very large range does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is currently evaluated as Least Concern (BirdLife International 2009).

However, this global assessment is based on the latest available data, which in this case are the same as those collated for BiE2 (BirdLife 2004) – i.e. with population size and trend data which are now more than a decade old. It is entirely possible that the species may have declined by more than 30% overall since 2000, in which case its global threats status should be reviewed and it may need to be uplisted to Vulnerable. The current paper will inform this review.

EU Birds Directive (2009/147 EC)

In its original (1979) form, only the Alpine/Apennine (*saxatilis*) and Sicilian (*whitakeri*) subspecies of the rock partridge were listed on Annex I, while 'all others' (i.e. *graeca*) were listed on Annex II/1. Since the accession of BG and RO to the EU in 2007, however, this distinction has been removed, which means that the whole species is now listed on both Annexes I and II/A.

Bern Convention Appendix III

Information on Hunting

The rock partridge is listed on Annex II part A of the EU Birds Directive 2009/147/EC and hunting may be permitted in all Member States. Currently within the EU there is an open season in Bulgaria, France, Italy and Greece.

Table 3. Information on Hunting

Country	Open season	Annual Bag	Year(s)	Reference / source
Albania	15/10 to 31/01[30]		2011	Albanian Hunters Federation
Austria	No open season	n/a		
Bosnia and Herzegovina	01/10 to 05/01 ?			
Bulgaria	01/10 to 30/11			
Croatia	01/10 to 14/01			Croatian Hunting Federation
France	End Sept or start Oct to 11/11	206 average bag	1998-2008	Bernard-Laurent (workshop Oct 2011)
Greece	01/10 to 15/12[31]	No national figure, 28,000 average bag in Sterea Hellas only	2009-2010	Bontzorlos et al (workshop Oct 2011)
Italy	Oct and Nov[32] in alpine provinces	No national figure, 640 in Alpine provinces only	2010	Artuzo (workshop Oct 2011)
Macedonia FYROM	11/10 to 15/12			Hunting Federation of Macedonia
Montenegro	01/10 to 31/12			Hunting Association of Montenegro
Serbia	No open season[33]	n/a		
Slovenia	No open season	n/a		
Switzerland	No open season	n/a		

[30] Albania - daily bag limit for Rock Partridge is 5 birds per hunter and hunting limited to 3 days per week (Fri, Sat, Sun)
[31] Greece – daily bag limit for Rock Partridge is 2 birds per hunter and hunting limited to 3 days per week (Wed, Sat, Sun.) 33 hunting days per season.
[32] Italy – Open seasons vary between provinces. In the alpine region it ranges min 5 days, max 43 days during October and November. In 2010 out of the 21 provinces where Rock partridge present at least 3 provinces had no open season (Bergamo, Verona, Vicenza)
[33] Serbia – no open season since 2010

Hunting regulation and management

France

The legal period for hunting mountain galliformes in France ranges from the end of September or beginning of October to the 11 of November. The regulation varies among departments. rock partridge hunting is prohibited in the department Drôme, hunted with a seasonal limiting bag in department Haute-Savoie since 2008 (previously from 1974 to 2007, hunting was prohibited) and with hunting plans in the other 5 departments.

In France the quantitative data collected by the OGM (Observatoire des Galliformes de Montagne) and in particular the demographic monitoring is used to establish if in the first place, if hunting can be permitted, and if so what is the maximum number of birds that can be shot.

To estimate of the maximum number of shot birds, the following elements are taken into account; population trend, density of cocks, reproductive index and the losses due to hunting. Results of the summer census carried out on a reference site are extrapolated to all hunting territories of a mountain area.

Hunters are obliged to take notes on the species, date, time and locality of shot birds in a bag record notebook. Controls are made in the field and fines imposed if the notebook is not completed. At the end of the hunting season, the hunter must give back the notebook to obtain the renewal for the following season.

The yearly average number of rock partridges shot in the French Alps during the 11 seasons from 1998 to 2008 was 206 birds, with considerable variation depending on the annual hunting plans.

Italy

At the rock partridge workshop in Bolzano, 28th October, results of monitoring schemes were presented by hunters from regional or provincial associations from the alpine region of Italy. Besides monitoring data, bag data is collected in all provinces but is not collected centrally. A study has been conducted on a voluntary basis by UNCZA (Unione Cacciatori Zona Alpi) which brings together data from throughout the alpine region of Italy. Some of the results of this survey are presented below. For some of the provinces long term hunting bag data is available (e.g. SüdTirol /Alto Adige, 1954 -2010, Trento, 1968 - 2010).

In 2010 out of the 21 provinces where Rock partridge is present at least 3 provinces had no open season (Bergamo, Verona, Vicenza). Hunting is prohibited in the alpine region when the reproductive index is below 1 (ratio young/adult) or 2 young per clutch. In 2010 the average ratio of young to adult birds was 2.15, and young per clutch 4.35.

In Alto Adige (province of Bolzano) hunting is managed on the basis of a permit system which is non-transferable (1 licence for 1 hunter). The bag limit is 2 birds per day and 6 birds for the entire season.

In the province of Trento the form of traditional hunting management is described in Cattadori et al. 1999. The province is divided into 210 administrative hunting areas where local hunting associations within each village control and record hunting statistics for ungulates and alpine galliformes. "*There is no limit on the number of licences produced each year to local people. The result of the annual harvest from each hunting area is forwarded to the Province Department of Wildlife. Rock partridge are hunted during autumn, from September to the middle of December, and the number of days available for hunting each year is set by the Department of Wildlife. During the period of this study* (1974 to 1994)*, these varied between 22 and 36 days per annum; before 1992, there was no restriction on the number of birds that could be harvested by each hunter but since 1992 the Department has assigned a maximum number per season in each hunting area".*

During the workshop in Bolzano it was reported that no season was opened in Trento in 2010.

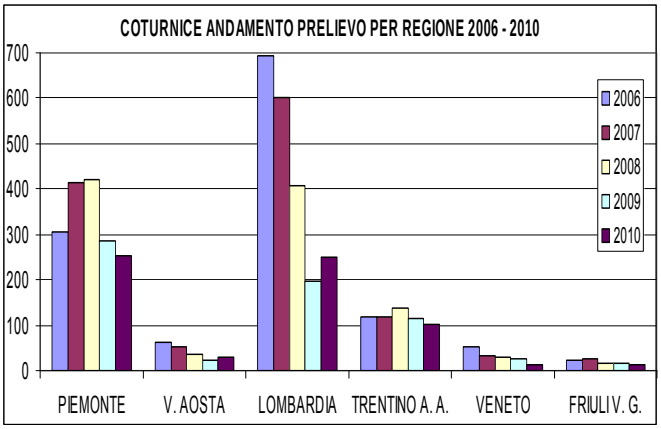

Fig. 6. **Italian hunting bag estimates 2006-2010 from Alpine regions**

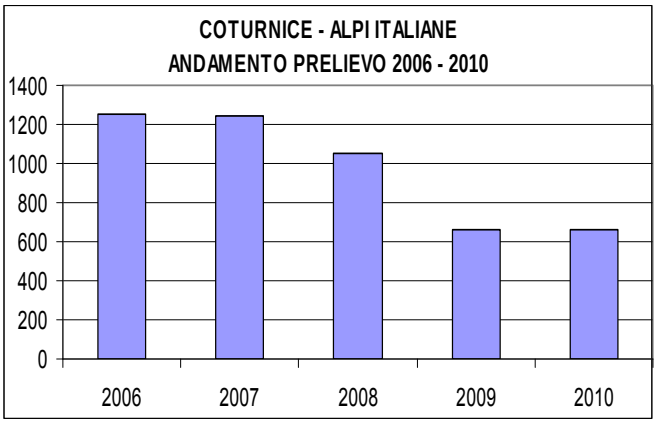

Fig. 7. **Hunting bag estimates 2006-2010 from all Alpine regions.**

Greece

The Greek ARTEMIS programme managed by the Hellenic Hunters Confederation records various hunting statistics from hunters including bag data and 'hunting opportunity' – meaning number of birds flushed by dogs or seen within close range. This information provides an index of relative abundance of game species in Greece. Figure 8 shows the data extracted from the database for rock partridge.

Average annual hunting opportunity for rock partridge per sortie

Average annual harvest for rock partridge per sortie

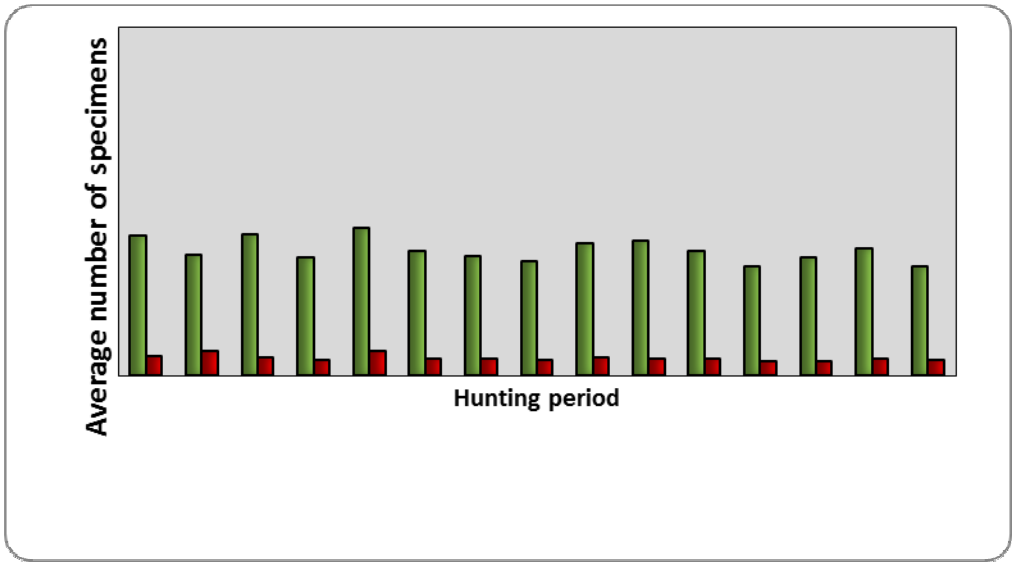

Fig. 8 Source: adapted and updated from Thomaides *et al*. (2007)

Threats

Main cause of decline in mountain areas is probably the loss of habitat due to, and change, of prime habitat associated with decreasing low-intensity rural farming activities. The development of the tourist industry has also led to habitat destruction and, by opening up remote areas, increased disturbance during the breeding season. In Mediterranean regions, the decline seems due to increased human impact, especially poaching and intensive hunting (Bernard-Laurent & Boev in Hagemeijer & Blair 1997).

HABITAT

Throughout much of its range the rock partridge is thought to suffer from loss or degradation of habitat due to abandonment of traditional agriculture in mountain and upland areas, which leads to either tree and shrub encroachment or more intensive land use (heavy grazing, mountain sports developments e.g. ski stations). The rock partridge is however, less susceptible to collisions with overhead cables than other mountain galliformes such as Black Grouse or Rock Ptarmigan (Bernard-Laurent 2008). Habitat change in coastal Croatia due to habitat succession of karstic grassland towards scrubland is faster on lower elevations.

Within the Apennine Mountains of Italy, Rippa *et al.* (2011) compared the habitat suitability for rock partridge prior to abandonment of traditional agro-pastoral activities to present day with the use of aerial photography, in order to investigate the effect of secondary succession on the distribution and viability of the species. The historical distribution (*c*.1900–1950) was assessed by quantifying anecdotal evidence from interviews, and the current distribution (2005) from survey data. Analysis of ecological niche factors and connectivity was used to evaluate change in habitat suitability over this time scale. Results indicated that to maintain a viable population in the Apennines, the species requires an ensemble of ecological conditions considerably different from the current situation. A drastic decrease in connectivity was observed as a result of a reduction in numbers and size of high suitability patches. The authors identify this as probably the primary cause of the current decline of the rock partridge population in the Apennines.

In the Dolomitic Alps (province of Trento) Cattadorri *et al.* (2003) made an assessment of extinction probability comparing projections of discrete isolated populations with metapopulations consisting of local populations connected by dispersal. With no dispersal between populations, viability analysis of rock partridges in the Dolomites suggested that the species has a high probability of becoming extinct within the next 100 years. By contrast the projection of a metapopulation showed long-term

persistence but the percentage of local populations that became extinct was still high (68%). This demonstrates the importance of maintaining landscape connectivity between rock partridge distribution sites.

HYBRIDISATION with released *Alectoris chukar* and *Alectoris rufa*

To stock up game populations following the decline in rock partridges, hunters have supplemented wild populations with released Chukars or interspecific Chukar / Red-legged Partridge hybrids, which are relatively easy to rear in captivity. This practice raises concerns of genetic pollution of native rock partridge. (Bernard-Laurent & Franceschi 1994. Randi 2008, Barilani 2007).

To investigate the occurrence of hybridisation bewteen Chukar and rock partridge, Barilani (2007) sample Rock partridges (n = 416) were collected from the French and Italian side of the Alps, the Italian Apennines and Sicily between 1989 and 1999. Results showed that 39 samples (6.2%) show mtDNA haplotypes discordant with their phenotypes, indicating red-legged and chukar mtDNA introgression in native rock partridges. Further analysis of microsatellite genotypes identified 32 additional rock partridges (5.1%) hybridised mainly with chukars. In Sicily, Randi (2006) made a similar study. Of In this study, 343 rock partridges *A. g. whitakeri* sampled only 11 interspecific hybrids were identified indicating, fortunately, that hybridization and gene introgression is not yet widespread in natural populations. The author gives recommendation that conservation planning aim to control and limit the use of captive reared partridges for population restocking on the European mainland, should prevent the release and mixing of rock partridges from different biogeographical areas, and should stop captive-breeding and release programs on Sicily.

In France (since 1980's), Italy and Greece (since 2008) it is illegal to release Chukar in areas where rock partridge are present. During the course of drafting this assessment concerns have been raised of this issue in several countries in the Balkan region.

Community financial support

Bulgaria

Under the EU Structural funds the Bulgarian 'Operational Programme Environment 2007-2013' has provided financial support to the Union of Hunters and Anglers in Bulgaria for a project "Conservation of habitats and populations of rock partridge (*Alectoris graeca graeca*) in Bulgaria" (contract number 58301 - C - 011). The project will

be implemented in partnership with the NGO "Green Balkans" and covers the period from September 2009 to the end of June 2012.

France & Italy

Alcotra 2007-2013 - Progetto Galliformi Alpini / Projet Les Galliformes Alpins

Following the Decision C (2007) 5716 of 29 November 2007 the European Commission approved a program of cross-border cooperation between France and Italy "ALCOTRA" for the period 2007-2013, which covers the border between the two Alpine countries. The programme is co-financed by the European Regional Development Fund (ERDF).

The Alpine Galliformes project (2009-2012) covers the species Black Grouse *Tetrao tetrix*, Rock Ptarmigan *Lagopus mutus*, rock partridge *Alectoris graeca*, Hazel Grouse *Bonasa bonasia* and Capercaillie *Tetrao urogallus*.

The project has two overarching goals:

- To study the population status of alpine galliformes in the western Alps, the condition of their habitat and the various threats to which are subject.
- To create a permanent monitoring network using similar methodologies that will continue to operate after the end of the project. This will ensure long-term data collection on these species and an indicator of the state of the alpine environment, to allow the adoption of common measures and coordinated the protection and preservation of these species and their habitats.

Italy

Two LIFE projects have been implemented for the Rock partridge in Italy:

- SICALECONS - Urgent actions for the conservation of the *Alectoris graeca whitakeri* (LIFE09 NAT/IT/000099) 10-SEP-2010 to 10-SEP -2013
- Tarvisiano - Integrated plan of action to protect two NATURA 2000 sites (LIFE98 NAT/IT/005112) 01-JAN-1999 to 31-DEC -2001. *Alectoris graeca saxatilis* one of several target species.

Conservation actions underway

- EU Birds Directive Annex I, i.e. subject of special conservation measures throughout the EU, including the classification of Special Protection Areas under Natura 2000
- Conservation of habitats and populations of rock partridge *Alectoris graeca graeca* in Bulgaria (see section - *Community financial support*)
- The main activities to be carried out under the project are as follows: Creation of game fields • Enclosing the game fields • Creation of winter shelters • Artificial feeding during periods of harsh weather • assessment of the effectiveness of conservation measures
  These measures are to mitigate against the loss of traditional mountain farming, which had previously afforded suitable habitat for rock partridge.
- Alcotra 2007-2013. Alpine Galliformes (see section - *Community financial support*)
- SICALECONS - (see section - *Community financial support*)

  Expected results: The project expects to achieve the following results:

  To safeguard and increase the population of *A. g. whitakeri* within the target areas (SPAs) • To maintain biodiversity within the target areas • To create a captive breeding stock of *A. g. whitakeri* for release in other Sicilian areas • and To raise awareness among local communities about the importance of biodiversity concepts, with particular reference to the project results.

Conservation Actions Proposed

Habitat measures

- Financial support for the promotion of tradition agricultural practices in upland and mountainous areas, or secondly conservation measures which mimic traditional agriculture see project 'Conservation of habitats and populations of rock partridge (*Alectoris graeca graeca*) in Bulgaria'

- Maintenance of open mosaic landscape features; clear tree and shrub encroachment, maintenance of open areas with small flocks of goats, use of electric fencing in rotation in areas with higher livestock densities

- Efforts to ensure connectivity between sites

- Cultivating appropriate areas such as abandoned agricultural fields with leguminous plants (*Vicia, Lathurus sp*.) or cereals crops (*Fagopyrum sp, Secale cereale*)

- Mowing of meadows, but not uniformly to create mosaic, cut grass should be left in place in hay sheaves

- In arid areas provide access to small natural springs while excluding access to livestock

- Planting of specific tree species in higher altitudes which offer cover from avian predators *(Juniperus communis, Pinus leucodermis)*. This has proved suitable in Greece (Manios 2003), and may prove useful in similar biogeographic areas

- Some bushes as required at lower winter areas, with flushes cut for shelter

Other management measures

- Communication of the negative effects of hybridisation with Chukar or interspecific hybrids and how they can be avoided

- No release of Chukars in areas where rock partridges are present (already the case in some countries)

- Ecologically balanced control of widespread generalist predators (e.g. mustelids, fox)

- Prevent poaching – collaboration with forest service/game wardens/hunters associations

- Set limits or temporary local bans based on reproductive indicators in areas with declining populations (known to be practiced in France and alpine area of Italy)

- Give consideration to the role of helminth parasites as potential drivers of rock partridge population dynamics when planning conservation measures (e.g. see Manios *et al.* 2002 & 2005, Rosà *et al.* 2011)

Research and monitoring needed

- Population size

- large scale survey on rock partridge trends due to lack of information on the population status within the core distribution area – **High priority**
- Inventory of national reference sites which are representative of conditions at a larger scale. This is important to allow long-term sustainability of monitoring activities and ensure reliable extrapolation of figures – **Medium priority**
- More efforts to centralise existing data collected at regional or local scales – **Medium priority**

- Methodology
  - Provide guidance on methodologies for counting singing males in spring – **High priority**
  - Provide guidance on the use of the distance sampling method for estimating population size – **Medium priority**
  - Standardisation of certain parameters such as for extrapolation of population density figures – **Medium priority**
  - Consensus on units used - is preferable to using singing males or breeding pairs? – **Low priority**
  - Improve monitoring design and protocols - **Low priority**
    - Cross-border collaborative projects such as the ALCOTRA programme (France/Italy) could be a step towards achieving the points listed above

- Ecology
  - Analysis of environmental variables responsible for rock partridge declines – **High priority**
  - Develop habitat suitability models rock partridge throughout its range – **Medium priority**
  - Collect more information on trends in habitat change – **Medium priority**
  - Research in the role of helminth parasites as potential drivers of rock partridge population dynamics – **Medium priority**

- Threats
    - Analysis of the effectiveness of different conservation measures being applied in the field – **High priority**
    - Collection and assessment of hunting bag statistics where missing – **High priority**
    - Provide information on techniques on how to identify hybrids both through field observation (including recording of singing males) and genetic analysis. Cost-effective genetic tests for detecting Red-legged Partridge hybrids have been developed in Spain and France and may be adaptable for detecting hybrids in rock partridge – **Medium priority**
- Demographic parameters
    - Research on demographic parameters to seek answers to how and why populations fluctuate and role of human exploitation impacts those fluctuations – **Low priority**

End remark:

'*Successful implementation of sustainable exploitation requires both quantitative data and explanatory factors to provide an overview of how rock partridge populations endure the global changes in environment*' (Ariane Bernard-Laurent, ONCFS, Bolzano 28th October 2011)

Contributors:

Themi Perri & Anesti Postoli (The Federation of Hunters of Albania), Zamir Dedej (Institute of Nature Conservation in Albania), Reinhard Lentner (Dept. Environmental Protection, Tyrol, Austria), Peter Lebersorger (Austrian Central Hunting Federation), Dimitar Nanchev (Union of Hunters and Anglers in Bulgaria), Niklaus Zbinden (Vogelwarte - Swiss Ornithological Institute), Boris Barov & Ian Burfield (Birdlife International), Jasminka Radovic (State Institute for Nature Protection, Croatia), Jelena Kralj (Institute of Ornithology, Croatia), Ivan Budinski (BIOM, Croatia), Ariane Bernard-Laurent (ONCFS), Vasileios Bontzorlos (Helenic Hunters Confederation), Ivano Artuso (UNCZA, Italy), Alessandro Brugnoli (Associazione Cacciatori Trentini), Domenico

Fulgione (Università degli Studi di Napoli Federico II), Roberto Rosà (Foundation Edmund Mach, Italy), Giorgio Carmignola (Ufficio Caccia e Pesca, Provincia Autonoma di Bolzano/Südtirol), Angelo Lasagna (FIDC Aosta), Darko Saveljic (Republic Institute for Nature Protection – Montenegro), Metodia Velevski (Macedonian Ecological Society).

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Lessons learned from the population assessment process for jack snipe and rock partridge

Cy Griffin, FACE, Dec 2011

1. Has the process of producing a population status assessment been successful in improving the overall knowledge and understanding of the status and conservation needs of the species concerned?

The production of the population assessment for jack snipe relied heavily on the knowledge of a small group of experts, with which FACE had a good working relationship. The effort required for the assessment mainly consisted distilling a large volume of information into the succinct format of the report and identifying key conservation measures which could benefit this species. The population assessment was successful in gathering available information. The gaps in knowledge which exist are largely due to lack of monitoring for this species, rather than difficulties in accessing information.

For the rock partridge the situation was different, with monitoring taking place at local levels but not always centralised at national level. The quality and intensity of monitoring was also variable across the distribution range of the species. Where the assessment process succeeded was in capturing the state of monitoring for the rock partridge in each country. As the workshop was held in the north of Italy this region was well covered, but for the rock partridge populations in the Apennine Mountains of central and southern Italy knowledge gaps remain. The conservation needs of rock partridge and the drivers for its decline in many parts of it range were remarkably similar; namely abandonment of extensive pastoral farming activities in upland and mountain areas. Concrete actions to remedy this were presented at the workshop and are listed in the population assessment report.

2. What were the main obstacles to in accessing such knowledge?

The situation was contrasting between the two Annex II species. For the jack snipe it was straight forward process as a monograph on this species has recently been produced, and leading experts participated at the workshop. For the rock partridge more networking efforts were required and language was an obstacle to communication, particularly in Italy.

Some stakeholders were possibly unconvinced of the benefit of such an exercise based of prior experience or imposingly due to lack experience of international cooperation. There were also some minor delays in receiving information.

Differences in methodologies and units used posed some difficulties when compiling the reports.

How were these obstacles addressed by the workshops and the process overall?

The network of contacts of BirdLife International and FACE was a major advantage in this process. While this may seem obvious, its value should not be underestimated.

Holding the rock partridge workshop in a region within the distribution of the species was a major advantage. While migratory species oblige international cooperation, sedentary species can be managed at more localised level and hence those with expertise in species of their region may not see the advantage of travelling (e.g. to Brussels) to learn about what is at their doorstep. Having high quality translation facilities at the workshop was essential for communication.

The need for common methodologies was discussed at the workshops and summarised in the reports.

3. Which were the main contributors (participants, stakeholders, data providers) to improving the knowledge?

For jack snipe almost exclusively and rock partridge in parts of it range, experts with an interest in hunting provided much of the information and participated at the workshop. It should be noted that such experts were not necessarily affiliated to hunting organisations. In general contributions came from a combination of ornithological institutes, NGOs, governmental agencies or departments, and academic structures. Literature research was also conducted by FACE and BirdLife Europe.

It was evident in compiling the population assessment that BirdLife International partners or contacts (e.g. via the CoE Emerald Network) were more experienced in supplying information that was compatible with the format of the population assessment and this facilitated the task.

4. Were there differences in the attitudes between different stakeholders on the conservation of the species, and if so how were they addressed?

For the jack snipe there is general agreement on the conservation of the species. The issue for this species is that it is exceptionally difficult to monitor throughout the year

and throughout its distribution. Therefore the experience of a small number of people with this species and its habitats was essential. It happened that this experience was developed through hunting and game management,

For the rock partridge there was divergence of opinion of population size in certain countries, mainly outside the EU. This is not to say that two different stakeholders presented conflicting information, but that it was indicated by a single source that official government figures were overestimated. Where such conflicting information was reported it is indicated within the population assessment under the national reports. In the future it would be necessary that all submitted data be checked by independent from each other sources. This is especially valid for non-published information.

5. Are there any remaining or unresolved disputes that must be addressed by the EC? Any diverging views need mentioning?

For jack snipe no.

For rock partridge there are some disagreements on population size, but not within the EU. In Greece an estimate has been given which is considerably larger than previously reported, but this has not been contested during the drafting process. However, the discussions started at the workshop have been continued in the frame of the Red List assessment process where the Greek data has been suggested for more careful review. The practice of releasing Chukar in areas with rock partridge has been identified as damaging but this is banned in EU Member States where it was previously practiced.

6. Lessons learned from the process – what should be taken forward and implemented in future population assessments?

Initial 'fact finding' assessments are valuable for planning conservation priorities, particularly for species with gaps in knowledge. While a management or recovery plan for the jack snipe is not considered as a priority, the population assessment could act as inspiration for monitoring in on a wider scale within its European distribution. It was evident that in some cases – such as for jack snipe - that habitat based plans may be more suitable and beneficial to a wider range of species. The point being that single species plans should not be the sole tool to conserve bird populations.

Capacity building is required to assist those engaged to bird monitoring (often done on a voluntary basis) and where necessary funding for coordination.

The process has demonstrated the advantage of working at an early stage with stakeholders with different 'constituencies' to ensure access to a range of data sources,

particularly for species which may not be covered sufficiently by conventional monitoring schemes.

Population Assessment for Yelkouan shearwater *Puffinus yelkouan*

Background

Puffinus yelkouan is endemic to the Mediterranean basin, but its precise distribution is not well known and numbers are disputed (Bourgeois and Vidal 2008). The main breeding colonies are concentrated in the central and eastern basin of the Mediterranean, from Corsica and Sardinia through the central Mediterranean, the Adriatic and the Aegean (Borg *et al.* 2010). The species is known to breed in France, Italy, Malta, Algeria, Tunisia, Croatia, Albania, Greece and Bulgaria. Breeding is assumed in Turkey on offshore islands or mainland cliffs in Aegean and Mediterranean, but there is very little data on this. A small population may also breed on the eastern Balearic Islands in Spain, although the existence of the species here is somewhat controversial, given the taxonomic uncertainty of the birds breeding in Menorca

Rationale for 2011 Population Assessment

Yelkouan shearwater has been identified as having an unfavourable conservation status in Europe as it is listed in Annex I of the Birds Directive, is classified as Near Threatened (pending uplist to Vulnerable) on the IUCN Red List as a result of recent declines, and reports indicate that mortality rates may have increased in recent years, particularly due to incidental fishing bycatch and introduced invasive species. A population assessment for this species is required before prepared before any Action Plans are produced/ updated particularly as the current size and trend of many national populations is unclear. Under the on-going contract ENV.B.2/SER/2009/0076r on Scientific and technical assistance supporting species protection under the Birds Directive, an element of the task is data collection and assessment of the population status of Yelkouan shearwater since a the EU holds at least two-thirds of the total global population, and possibly much more – this uncertainty reflecting the lack of knowledge about the size of the population in Turkey and Tunisia.

Habitat Information

Yelkouan shearwater breeds on rocky coastal and offshore islets (on average larger islets than Cory's shearwater *Calonectris diomedea*), and on the mainland of some islands (including Sardinia and Malta). In the non-breeding season it disperses widely within the Mediterranean and Black Seas, often congregating in large flocks.

Population size

Albania – There is no recent population estimate for Albania. The most recent estimate is 1-10 pairs (Nowak 1989 [referenced in Snow and Perrins 1998; BirdLife International 2000; BirdLife

International 2004]). There has been no survey response received from Albania for this report. There are no IBAs for the species in Albania.

Algeria – There is no recent population estimate for Algeria. The most recent estimate is 8-10 pairs (Zotier *et al.* 1992 [referenced in Isenmann and Moali 2000; Bourgeois and Vidal 2008]). There has been no survey response received from Algeria for this report. There are no IBAs for the species in Algeria.

Bulgaria – 0-10 pairs (Iankov 2007) based on expert opinion from occasional observations during the breeding period between 2004 and 2005. Breeding is possible in Bulgaria but has not been proved since 1963 (Paspaleva-Antonova 1965) and so the figures provided here are of poor (suspected) quality (M. Madjarov, P. Iankov and S. Stoychev pers. comm.). However, there have been various recent reports of Yelkouan shearwater individuals being sighted along the Bulgarian Black Sea coast during the breeding season including a flock of 450 individuals observed offshore in the region of Durankulak Lake in May 2005; a group of about 1,300 individuals in the region of the Kamen Brjag village in May 2006; and two groups of 1,300 and 1,000 individuals observed flying from the coast in the region of the Kamen Brjag village in May 2006 (Nikolov *et al.* 2006).

The national population size for Bulgaria was previously estimated at 0-10 pairs (BirdLife International, 2004). There are six IBAs for the species in Bulgaria.

A mass invasion of Yelkouan shearwaters occurs from the Mediterranean into the Black Sea from February to the end of October, with a peak during June-September (Aguilar *et al.* 1989). Many immature birds enter the Black Sea from February onwards, whilst breeding adults generally enter the Black Sea in the summer (Nankinov 2001). At least 30,000 birds occur in Bulgaria in the winter along the Black Sea coast (X. Montbaillu pers. comm.).

Croatia – 300-500 pairs (Budinski *et al.* 2010) based on the latest counts at colonies during the breeding period from 2006-2011. The quality of this data is good (estimated) (I. Budinski, K. Mikulić L. Jurinović A. Čulina and L. Lucić pers. comm.). However, it has been suggested that these numbers could be an overestimation as numbers from 2000 and 2004 were very rough guesses (R. Crnkovic pers. comm.). The previous national estimate for Croatia was 250-300 pairs (G. Lukač, pers. comm. [from Bourgeois and Vidal 2008]). There are two proposed IBAs for the species in Croatia. At least 1,000-2,000 individuals spend time in Croatia during the non-breeding period (I. Budinski pers. comm.).

France – 662-1,109 pairs (Bourgeois and Vidal, 2009; Cadiou *et al.* 2011) based on the latest counts at colonies during the breeding period (April-June) from 2004-2010 and so the data quality is good (estimated) (Bourgeois, K., Vidal, E., Bonnaud, E. and Yésou, P. pers. comm.). The previous national estimate for France was 1045-1636 pairs (IMEP, unpubl. data; Zotier and Vidal, 2004 [referenced in Bourgeois and Vidal 2008]), with a recent LIFE Nature project estimating the population size in the Hyères islands at 1,112-1,576 pairs (LPO, 2007). The most recent figures thus indicate a decline. However, these figures are considerably higher than earlier estimates of 292-414 (Cadiou *et al.* 2004) and 240-360 pairs (Dubois *et al.* 2000) and are explained by better coverage of the survey area. There are five IBAs for the species in France.

Greece – 4,000-7,000 pairs (Hellenic Ornithological Society, 2009) based on latest counts (estimating nest density by counting at colonies supported by raft counts and ESAS counts at sea) conducted during the breeding period (April-June) from 1995-2011. The actual recorded figures are 3,660-5,320 breeding pairs, but this is considered an underestimation (medium, estimated data quality) (Fric, J., Kastritis, T., Portolou, D., Evangelidis, E., Mullin, S. V.and Gaganis, K. pers. comm.). The previous national population size for Greece was estimated at 4,000-7,000 pairs (BirdLife International 2004). There are sixteen IBAs for the species in Greece. Around 25,000-30,000 birds pass through Greece in the non-breeding season (J. Fric pers. comm.).

Italy – 9,000-20,000 pairs (Corso *et al.* 2009; Baccetti *et al.* 2009; N. Baccetti pers. comm.) based on data from Baccetti *et al.* (2009) study on breeding shearwaters on Italian islands, combined with recent estimates of c.13,000 pairs at Tavolara and Molara (utilising counts of rafts; coastal movements of birds going in one direction; nest density; individual behaviour; and mortality [N. Baccetti pers. comm.]), and data from Corso *et al*. (2009) preliminary data on a recently newly discovered breeding colony of Yelkouan shearwater on Lampedusa island (of 2,000-4,000 pairs; previously numbers on Lampedusa were estimated at 500-1,000 pairs). The population estimate of the Lampedusa colony was obtained through counts of rafts at sea as well as counts of nest sites and calling birds at night at colonies over a 3-year period (Corso *et al.* 2009; A. Corso pers. comm.).

The population estimate of other Italian breeding sites by Baccetti *et al.* (2009) is based on an average value over a repeated number of censuses that were conducted during 2000-2008, predominantly over the breeding period (February-June). This figure was obtained through a literature review of the most recent information on local breeding records and colony size of the species. The majority of these records are based on counts of rafts at sea and so are of Medium (inferred) quality (Baccetti, N., Zenatello, M., Sposimo, G. and Sposimo, P. pers comm, M. Gustin pers. comm.; J. Cecere pers. comm.). It should be noted that the higher recent Italian population

estimate is due to improved survey methodology and a better knowledge of colony locations, rather than a genuine increase in population size.

Since the 2009 study by Baccetti *et al.* the absence of San Pietro island colony (Schenk and Torre, 1986; recorded at 500 pairs) was reported. It is unsure whether this is colony extinction or whether the original population size was incorrect.

The previous national population estimate for Italy was 7,000-14,000 pairs (Brichetti and Fracasso, 2003). There are two IBAs for the species in Italy.

Malta –1,190 - 1,680 pairs (Sultana *et al.* 2011) based on the latest counts from colonies as well as seasonal counts of rafting birds conducted during the breeding period (February-May) from 2010-2011 (good [estimated] quality data) (Sultana, J., Borg, J. J., Raine, A. and Raine, H. pers. comm.). The previous national population estimate for Malta was 1,680-1990 (Raine *et al.* 2009). The species has breeding colonies on Malta island (including Rdumtal-Madonna), Gozo island, Comino (Kemmuna) island and Cominotto islet. The species is possibly extinct on Filfla islet and possibly breeds on Fungus Rock (Borg and Sultana, 2002). There are nine IBAs for the species in Malta. A small Maltese colony of c.<100 individuals was recently discovered (J. J. Borg pers. comm.) and needs monitoring to determine the populations size.

Spain – 0 pairs (Arcos, J. pers. comm.). Yelkouan shearwater is mainly a non-breeding visitor to Spain and the existence of a Spanish breeding population of Yelkouan shearwater is controversial, given the taxonomic uncertainty of the birds breeding in Menorca (see detailed account on the recently reviewed species action plan for the Balearic shearwater; Arcos, 2011; Curé *et al.* 2010). Whatever it is considered, the population would be small (ca.200 pairs) compared to the non-breeding population; Arcos, J. pers. comm. The Spanish population is considered in the Balearic shearwater species action plan (Arcos 2011), although mitochondrial DNA studies have shown some individuals show genotype of *P. yelkouan*, whereas others show genotype of *P. mauretanicus* (Genovart *et al.* 2005), so the taxonomic status of the Spanish population remains slightly unclear. There appears to be some gene flow between Menorca and Mallorca (J. M. Arcos pers. comm.). The previous national estimate for Spain was 100-150 pairs (Ruiz *et al.* 2003), although in a recent review of the distribution of Yelkouan shearwater by Bourgeois and Vidal (2008), the population size in Spain is stated as being zero. There are no IBAs for the species in Spain. It should be noted that previous high estimates of populations in Spain (e.g. 3,300-5,000 pairs in 2000; BirdLife International, 2000) were reported prior to the taxonomic split from *P. mauretanicus* in 2004 and so these figures refer to populations of *P. mauretanicus* and not *P. yelkouan*. During the breeding season, there are around 5,000-10,000 non-breeding birds in Spain (J. M. Arcos pers. comm.). The Alboran Sea has no known breeding populations, although there were previous reports; however, these may have referred to breeding birds coming from Africa coming to Spain that were not in fact *P. yelkouan*).

There are many wintering Yelkouan shearwaters in Spain, including Catalonia, which may be the main wintering area for the species. Around 5,000-15,000 individuals winter in Spain (J. M. Arcos pers. comm.).

Tunisia – A newly discovered breeding colony of Yelkouan shearwater with an estimated 176-200 pairs (Bourgeois *et al.* in prep; Ouni *et al.* 2011) has been recorded on Zembretta island. The figure was obtained from the latest count at the colony during the breeding period (April and June) in 2011 using a double-observer protocol on the nine different sectors identified on Zembretta (good [observed] quality data) (Bourgeois, K. pers. comm.; M. Thevenet pers. comm.). The colony count was carried out 2 years after a rat eradication programme was implemented on the island. There was no previous estimate for the breeding population in Tunisia. It is likely that there is a non-breeding population in Tunisia (Bourgeois, K. pers. comm.; M. Thevenet pers. comm.).

Turkey- There are no confirmed breeding records for Yelkouan shearwater in Turkey and so it is estimated that the breeding population size is 0-? pairs (J. P. Tavares pers. comm.). To date no breeding colonies have been discovered but there are plans for researchers to visit some sites in 2012 to look for breeding pairs (J. Tavares and D. Şahin pers. comm.). The previous national population estimates for Turkey were 0-10,000 pairs (BirdLife International, 2004) and 1,000-30,000 pairs (BirdLife International, 2011). Kirwan *et al.* 2008state that the species is common in all months in Aegean, Marmara and Black Seas, although slightly less regular in the latter between November and February (when the species returns to breeding colonies), and numbers apparently lower in Aegean during winter (Eken 1997). Breeding is assumed on offshore islands or mainland cliffs in Aegean and Mediterranean, but no confirmed records (Kirwan *et al.* 2008). There are four IBAs for the species in Turkey.

The non-breeding population has been estimated at 1,000-14,000 individuals (J. Tavares and D. Şahin. pers. comm.) based on land-based counts during the breeding period (mid-January to late-July) from 2010-2011. Very large numbers of non-breeding individuals have been counted migrating through the Bosporus, with c. 75,000 individuals (J. Tavares and D. Şahin. pers. comm.) recorded in February 2012 passing through the Bosporus towards the Maamara Sea, with minimal movement in the opposite direction [c.1,900 individuals]). This data comes from preliminary results of twice-monthly monitoring counts that are conducted from an established site (middle of the Bosphorus) during breeding and non-breeding period and are thus of poor (suspected) quality (J. Tavares and D. Şahin pers. comm.), as more data is needed before definite figures can be reached. The Black Sea and Aegean Sea may also be sites for Juvenile, non-

breeding individuals during the breeding season, hence the relatively high numbers reported in the breeding season at the Bosporus. The non-breeding counts in the Bosporus are planned to continue (J. Tavares and D. Şahin pers. comm.).

The species spends time as a non-breeder season in Bulgaria, Turkey, Greece, France, Croatia, Spain, Tunisia, Malta, Ukraine, Romania, Slovenia (where an IBA is proposed for the species), Russia, Montenegro, Cyprus Georgia, Egypt, Libya, Algeria and possibly Bosnia (N. Baccetti; J. M. Arcos; J. P. Tavares; J. J. Borg; J. Fric; M. Thevenet pers. comm).

Table 1 Breeding and non-breeding population estimate by country

Country	*Breeding population in 1994 (pairs)*	*Breeding population in 2000 (pairs)*	*Breeding population in 2004 (pairs)*	*Breeding population in 2008 (pairs)*	*Current breeding population (pairs)*	*Breeding population year*	*Breeding population reference*	*Current non-breeding population size (individuals)*	*Non-breeding population year*	*Non-breeding population reference*
Albania	-	1-10	1-10	1-10	**1-10**	2004	-	-	-	
Algeria	-	-	-	8-10	**8-10**	1992	-	-	-	
Bulgaria	-	0-10	0-10	0-10	**0-10**	2004-2005	[1]	2,000-12,000	2003-2006	[2]
Croatia	-	500-1,000	50-100	250-300	**300-500**	2006-2011	[3]	1,000-2,000	1955-2011	[4]
Cyprus	-	-	-	-	**-**	-	-	10-200	1994-2011	[5]
France	-	340	240-360	1,045-1,636	**662-1,109**	2004-2007	[6, 7]	10,000	2004	[8]
Greece	1,000-2,000	8,000-15,000	4,000-7,000	4,000-7,000	**4,000-7,000**	1995-2011	[9]	29,000-46,000*	2004-2011	[9]
Italy	11,000-18,000	11,000-18,000	7,000-14,000	7,000-14,000	**9,000-20,000**	1995-2008	[10, 11, 12]	-	-	-
Malta	500-1,000	500-1,000	1,400-1,560	1,400-1,560	**1,190-1,680**	2010-2011	[13]	5,000-7,000	1983-2011	[14]
Spain+	-	-	50-250	0	**0**	-	[15]	5,000-15,000	2003-2011	[16, 17, 18]
Tunisia	-	-	-	?	**176-200**	2011	[19, 20]	-	-	-
Turkey	1,000-30,000	1,000-30,000	0-10,000	0-10,000 or 1,000-	**0-?**	2010-2011	[21]	1,000-14,000	2010-2011	[22]

				30,000						
Global Total	-	-	13,000-33,000	11,355-54,524	**15,337-30,519**	-		**52,000-102,200 individuals**	-	

* 4,000-6,000 wintering; 25,000-40,000 passage on migration

+ Population size of 3,000-5,000 pairs reported prior to split from P. mauretanicus and so this doesn't refer to *P. yelkouan* population.

1 - Iankov 2007; 2 - Nikolov et al. 2006; 3 - Budinski et al. 2010; 4 - Rucner 1998; 5 - Martin Hellicar & Michael Miltiadou pers. comm.; 6 - Bourgeois and Vidal 2009; 7 - Cadiou et al. 2011; 8 - Bourgeois and Heurtebise 2006; 9 - Hellenic Ornithological Society 2009; 10 - Corso et al. 2009; 11 - Baccetti et al. 2009; 12 - N. Baccetti pers. comm.; 13 - Sultana et al. 2011.; 14 - J. Sultana pers. comm.; 15 - J. M. Arcos pers. comm.; 16 - Arcos 2001; 17 - Arcos et al. 2009; 18 - Bécares et al. 2011; 19 - Bourgeois *et al.* In prep.; 20 - Ouni *et al.* 2011; 21 - J. M. Tavares and D. Sahin pers. comm; 22 - D. Sahin pers. comm; 23 - Oppel *et al.* 2011.

Global breeding population size

The current data from known breeding sites gives a global population estimate of **15,337-30,519** pairs/ 46,000-92,000 individuals. This figure corresponds with preliminary counts conducted during the non-breeding season at the Black Sea in which up to 75,000individuals have been sighted migrating through the Bosporus [J. Tavares and D. Şahin. pers. comm. 2012]). However, due to the lack of breeding confirmation for some sites, lack of surveys at definite breeding locations, lack of regular monitoring, and potential overestimation due to survey methods during some counts, it is possible that the global population of Yelkouan shearwater could be at the lower end of this estimate.

The absence of data is further compounded by a lack of reliable population monitoring in the majority of countries other than Malta and France, as well as the use of at-sea counts at some sites to estimate breeding populations. It is important to stress the imprecision and error inherent in estimating breeding population sizes using at-sea counts, because of strong overestimation (Bibby *et al.* 1992; Brichetti and Fracasso, 2003) and the fact that the presence of shearwaters at sea does not guarantee that the species breeds on nearby islands. Indeed, in Bourgeois and Vidal's recent review of Yelkouan shearwater distribution, population size and trends (2008), breeding population estimates for 77% of all the breeding sites (certain and possible) were based on counts at sea and contributed to 78.3-94.1% of the overall population size estimates (Bourgeois and Vidal 2008). It is possible that there may be large numbers of birds at sites that have not yet been surveyed, or that have been crudely surveyed, such as is the case for Cory's shearwater at a recently re-surveyed colony at Zembra Island, Tunisia, which resulted in >80% increase in the previously known population size.

The global breeding population for Yelkouan shearwater was previously estimated at 10,815-53,574 pairs (BirdLife International, 2011), although figures pointed more to a total of 14,700-52,000 pairs (Tucker and Heath 1994) or 100,000 individuals.

A recent review (Bourgeois and Vidal 2008) suggested that the global breeding population may be smaller than previously estimated, and is declining as a consequence of a number of threats, both at the breeding colonies and at sea (Bourgeois and Vidal 2008). Censuses of the 40 confirmed breeding colonies gave a global population estimate of 5,899–9,409 breeding pairs, based on surveys of nests or calling birds at 17 colonies and rough estimates of flocks at sea around a further 23 colonies. When taking into account at-sea counts (which may greatly overestimate the number of breeders) in the vicinity of a further 31 possible but unconfirmed breeding sites, the total breeding population was estimated to be 11,355-54,524 pairs (Bourgeois and Vidal 2008).

It is strongly recommended that in order to accurately assess the population size and trend of Yelkouan shearwater, breeding colonies are confirmed through breeding population censuses (counts at colonies during the breeding period), particularly in Turkey, Italy (predominantly Sardinia, Sicily and Lampedusa), Greece and Tunisia. In addition, suspected breeding sites, such as those in Turkey and Greece should be thoroughly searched. A newly discovered breeding colony at Lampedusa, Italy (in addition to the previously known colony), and Zembretta Island, Tunisia, further highlight the need for thorough censusing at suspected breeding locations to identify and confirm important sites.

Breeding Population trend

A lack of data on key sites combined with the absence of long-term regular monitoring at the major breeding colonies (in Italy, Greece, Turkey) means that it is difficult to determine a global population trend for the species. However, there is evidence of both recent and historical colony extinctions, with nine colonies (comprising around 300-400 breeding pairs) having been reported extinct in the last 60 years (Bourgeois and Vidal 2008). Since 2009, one breeding colony off the south-west corner of Sardinia (San Pietro Island) has been reported as absent, possibly extinct (Baccetti, N. pers. comm.; originally recorded by Schenk and Torre, 1986, at 500 pairs). It is likely that these extinctions occurred as a consequence of harvesting by man and predation by rats *Rattus rattus* (Vigne *et al.* 1991; Arcamone and Sposimo, 2002) which are also thought to be responsible for breeding population declines and low breeding success in the main breeding sites. These sites include Tuscany (Sposimo and Tellini, 1995), Sardinia (vast sectors of Tavalora and Molara islands have been abandoned; Baccetti *et al.* 2009) and Malta (J.J. Borg, pers. comm.; Bourgeois and Vidal 2008).

The trend of populations in Albania, Algeria, Bulgaria, Cyprus, Turkey and Tunisia are currently unknown, but it is suspected that populations in Croatia (a decrease is suspected for at least one colony [I. Budinski pers. comm.]) and Greece (based on long-term trends [J. Fric pres. comm.]) could be declining. It has been reported that the Italian, French and Maltese colonies (which represent 73% of the global population) are declining. By combining data for the three countries for which trend information is available, it is predicted that, if the species continues to decline at the current reported rate, the global breeding population will decrease by 52% over 54 years, i.e. 3 generations[34], from 1995 onwards, assuming that the populations in all other countries (than Italy, France and Malta) remain stable (which is the best-case scenario). The global population trend has been projected from 1995 since this is the earliest date for which we have trend data. Such a decline would qualify the species' Red List status to be uplisted to

[34] 'Generation length' refers to the average age of parents of the current cohort [i.e. newborn individuals in the population]. Generation length therefore reflects the turnover rate of breeding individuals in a population. Generation length is greater than the age at first breeding and less than the age of the oldest breeding individual, except in taxa that breed only once. Where generation length varies under threat, the more natural, i.e. pre-disturbance, generation length should be used.

Endangered (>50% decline over 3 generations). This projected decline is steeper than that reported by Bourgeois and Vidal (2008) who, on the basis of the data available from the western Mediterranean, estimate that the breeding population may have declined by 12–15% over the past 60 years, which would equate to a decline of c.11–13% over three past generations (54 years).

In general, Procellariformes are particularly sensitive to changes in adult survival since they are long-lived, slow breeding species. Changes in adult survival have been shown to translate into sharp variations of population growth rates (Cuthbert et al. 2004; Oro et al. 2004; Louzao et al. 2006). Low adult survival has been reported for the species, with adult survival probabilities for breeding Yelkouan shearwaters across the western Mediterranean being currently too low to maintain stable populations (Oppel *et al.* 2011).Annual survival probabilities of below 0.9 for French and Maltese colonies were reported between 1969–1994 and 2004–2010 (Oppel *et al.* 2011), and survival probabilities for non-breeders (0.95, 0.81–1.0) appeared to be higher than for breeders (0.82, 0.70–0.94), but were imprecise partly due to low recapture probabilities (Oppel *et al.* 2011). It is suspected that immigration of birds may explain why some of these populations have not yet exhibited declines (Bonnaud *et al.* 2009; 2010). Low adult survival probabilities are likely to be a result of human disturbances, including fisheries bycatch (Dimech *et al.* 2008; Borg *et al.* 2010; Oppel *et al.* 2011; Bourgeois and Vidal 2008), light pollution (Borg *et al.* 2010; Raine *et al.* 2007; Baccetti et al 2005; Le Corre *et al.* 2002; Montevecchi, 2006) and illegal shooting (Magnin, 1986; Raine and Temuge, 2009; Borg *et al.* 2010), as well as predation by invasive species (e.g. Sultana and Borg, 2006; Bourgeois *et al.* 2008b; Bonnaud *et al.* 2009).

Reports of extremely low breeding success at several key breeding colonies, particularly in Italy (e.g. 0% breeding success on Molara [where rats were present] and 78% on Tavolara [considering sites where rats are not present everywhere]; Baccetti *et al.* 2009) indicate that current declines may accelerate markedly when current breeders approach the end of their life cycle. Low breeding success is mainly attributed to alien predators, especially rats (Sultana and Borg, 2006a; b), which can heavily limit reproductive success by predation upon chicks and eggs (e.g. Thibault, 1995; Penloup *et al.* 1997; Martin *et al.* 2000; Igual *et al.* 2006; Baccetti *et al.* 2009, but see also Ruffino *et al.* 2008; reviews in Towns *et al.* 2006; Jones *et al.* 2008; Ruffino *et al.* 2009).

Heavily predated Yelkouan shearwater colonies have persisted in until now, after many centuries of rat presence on most Mediterranean islands (see Ruffino *et al.* 2009). Procellariform seabirds have been shown to exhibit a relatively low sensitivity to changes in fecundity, compared to changes in adult survival (Cuthbert et al. 2004; Oro et al. 2004; Louzao et al. 2006), which, together with some demographic buffer capacities (e.g., age at recruitment, skip breeding, immigration), could explain how shearwater populations have persisted despite centuries of rat impact. However, rats have recently and diffusely increased in number in Italy, making predation episodes more frequent and having more of an impact than previously

(Baccetti *et al.* 2009). This may have been caused by increasing food resources being provided to rats by breeding Yellow-legged Gulls, either in the form of prey remains, pellets, dead chicks etc, or indirectly, favouring nitrophilous and/or invasive plant species that may also sustain large rat numbers (Cassaing *et al.* 2005).

In addition, breeding success can be reduced by disturbance at colonies, particularly from tourism and coastal development (Borg *et al.* 2010; James 1984; Gallo-Orsi 2003; Cruz-Delgado *et al.* 2010) along with light pollution (Borg *et al.* 2010; Raine *et al.* 2007; Baccetti *et al.* 2005; Le Corre *et al.* 2002; Montevecchi, 2006) and potentially contaminants (Bourgeois *et al.* 2011). Low breeding success suffered at key colonies could result in an extinction lag and could potentially lead to rapid future population declines.

Information on adult survival probabilities and breeding success from the major colonies is therefore urgently needed to accurately assess the population status of the Yelkouan shearwater.

Italy

The Italian Yelkouan shearwater population accounts for more than 60% of the known global population and is showing signs of decline. However, due to a lack of information on breeding success and adult survival rates, a reliable, precise national, and global, trend estimate cannot be obtained.

Over the last few decades, and more recently, the species has undergone several local extinctions in Italy: Pianosa after 1989, Giannutri between 1993 and 2004 and possibly San Pietro and Serpentara (N. Baccetti pers. comm.) as well as in adjacent Corsica (Bourgeois and Vidal 2008). This is not surprising, considering that even the main colonies seem to suffer a very low productivity rate (Baccetti *et al.* 2009). Local colony extinctions are also possible on La Vacca and Cavoli islands in Sardinia, where night surveys are needed to confirm current absence of calling individuals. At Palmaria island in Liguria, it is likely that the colony became extinct in pre-historic times as the species is known only known through fossil findings (Brichetti *et al.* 1992), despite a careful search in 2005-2007 (Baccetti *et al.* 2009). Along with colony extinctions, Italian populations are also suffering breeding population declines and low breeding success in the main breeding sites. Vast abandoned sectors of Tavolara colonies, decreased raft sizes and a breeding success close to zero in most parts of the Tavolara archipelago (Bourgeois and Vidal 2008), suggest a strong population decline could indeed have occurred, confirming the worst scenario of the 12-50% decrease proposed for the whole global range (Baccetti *et al.* 2009; Bourgeois and Vidal 2008), and correlating with projected declines estimated in this report.

France

Concerning the long-term breeding population trend in France, the comparison of old data and more recent surveys suggest an increase in the population size but this is more a consequence of increases in census effort rather than a real increase in population size. The most recent data suggest a decline. The French population is in fact predicted to be decreasing at 6% per year based on population modelling (Oppel *et al.* 2011), although monitoring has indicated that the population has remained more or less stable over the past 20 years, likely due in part to immigration compensating for the loss of breeding adults (Bonnaud *et al.* 2009). For the islands of Porquerolles and Port Cros (Hyères archipelago) with a population size of 210–270 pairs, it is predicted that an average of 9–12 breeding pairs would have to immigrate to and start breeding on the Hyères archipelago every year to maintain a stable population (Oppel *et al.* 2011).

The apparent long-term increase in French numbers is an artefact of methodological changes and increased knowledge of the species, rather than a genuine population increase.

Malta

The population decline reported in Malta is likely to be due to low adult survival probabilities mainly as a result of predation by introduced species. The few known Maltese colonies are small, and all harbour populations of introduced rats and/or cats. For the largest breeding colony in Malta – Rdum tal -Madonna (398–602 pairs; Borg *et al.* 2010), population modelling has predicted that an annual influx of between 5–12 breeding pairs is required in order for the colony to remain stable (Oppel *et al.* 2011). However, this is not definite as this was extrapolated from a small study area and the Rdum tal-Madonna colony is known to be slightly increasing following rat eradication, whereas other colonies in Malta are decreasing (J. J. Borg pers. comm.). It should be noted that the non-breeding population trend for Malta in Table 2 refers to non-breeding birds in the breeding period, rather than moulting birds during the non-breeding season.

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Table 2 Recent and long-term breeding population trend by country

Country	*Recent breeding population trend*	*Year(s)*	*Reference*	*Long-term breeding population trend*	*Year(s)*	*Long-term breeding Reference*	*Recent non-breeding population trend*	*Year(s)*	*Recent non-breeding Reference*	*Long-term non-breeding population trend*	*Year(s)*	*Long-term non-breeding Reference*
Albania	-	-	-	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Bulgaria	Unknown	-	-	Unknown	1950-2005	[1]	Unknown	-	-	-	-	-
Croatia	Unknown	2006-2011	-	Unknown	2006-2011	[3]	Unknown	1955-2011	[3]	Unknown	1955-2011	[3]
Cyprus	-	-	-	-	-	-	Unknown	1994-2011	[5]	Unknown	1994-2011	[5]
France	6% per year Decreasing	2004-2010	[23]	34-114% Increasing	1982-2007	[6, 24, 25]	-	-	-	-	-	-
Greece	Unknown	2007-2011	-	Decreasing	1940s-2011	[26]	Unknown	2004-2011	[9]	Unknown	1996-2011	[9]
Italy	10-50% Decreasing	1995-2008	-	25-75% Decreasing	1970-2008	[10]	-	-	-	-	-	-
Malta	0-15% Decreasing	2002-2011	[13, 27, 28]	Unknown	1980-2011	[13]	5-10% Decreasing	1999-2006	[29]	4-8% Decreasing	1983-2011	[27, 28]
Spain	-	-	-	-	-	-	Fluctuating	2003-2008	[18]	0-50% Decreasing	1960-2008	[30, 31]
Tunisia	-	-	-	-	-	-	-	-	-	-	-	-
Turkey	Unknown	2002-2011	-	-	-	-	Unknown	2002-2011	[22]	Unknown	-	-

1 - Iankov 2007; 2 - Nikolov et al. 2006; 3 - Budinski et al. 2010; 4 - Rucner 1998; 5 - Martin Hellicar & Michael Miltiadou pers. comm.; 6 - Bourgeois and Vidal 2009; 7 - Cadiou et al. 2011; 8 - Bourgeois and Heurtebise 2006; 9 - Hellenic Ornithological Society 2009; 10 - Corso et al. 2009; 11 - Baccetti et al. 2009; 12 - N. Baccetti pers. comm.; 13 - Sultana et al. 2011.; 14 - J. Sultana pers. comm.; 15 - J. M. Arcos pers. comm.; 16 - Arcos 2001; 17 - Arcos et al. 2009; 18 - Bécares et al. 2011; 19 - Bourgeois *et al.* In prep.; 20 - Ouni *et al.* 2011; 21 - J. M. Tavares and D. Sahin pers. comm; 22 - D. Sahin pers. comm; 23 - Oppel *et al.* 2011; 24 – Cadiou *et al.* 2004; 25 - De Seynes 2010; 26 - Hellenic Ornithological Society, 2011. Hellenic Seabirds Database, unpublished data; 27 – Raine *et al.* 2009; 28 - Borg and Sultana 2002; 29 - J. J. Borg (pers. comm.); 30 – Finlayson and Cortés 1986; 31 – Paterson 1997.

Conservation and Legal Status

The Global IUCN Red List Category of the Yelkouan shearwater is currently 'Near Threatened' under criteria A4bcde (Criteria Version 2.3) since reports of extremely low breeding success at several key breeding colonies indicate that current declines may accelerate markedly when current breeders approach the end of their life cycle, and may be moderately rapid over three generations, hence justifying its status as Near Threatened. Declines have probably been ongoing for many years, and are projected to continue (BirdLife International 2011 Date of assessment: 2010-05-01).

The global population trend estimated here at 52% over 54 years, qualifies the species' Red List status to be uplisted under criterion A3bcde (Criteria Version 3.1). To explore the impact of uncertainty on the overall trend and category, a number of alternative scenarios have also been explored. When the trend assessments were re-run, only the most optimistic scenarios (i.e. assuming Italy is experiencing the minimum decline rate and countries with unknown trends are stable) altered the potential Red List category from Endangered to Vulnerable or Near Threatened. As such, the species's global Red List status is now being revised to Vulnerable under criterion A3bcde as it is projected to be suffering a rapid population reduction (30-49% decline over three generations).

The species is included in Annex I of the European Union Directive on the conservation of wild birds (79/409/EEC/1979) and in Annex II (strictly protected species) of the Convention on the Conservation of European Wildlife and Natural Habitats (or Bern Convention). In a 2010 review of all the members of the order Procellariiformes Yelkouan shearwater was selected as a potential candidates for inclusion within the Agreement on the Conservation of Albatrosses (ACAP) by the Fifth Meeting of the ACAP Advisory Committee (Cooper 2010).

Threats

Yelkouan shearwater populations are known to be declining, with the main drivers being mortality from incidental fishing bycatch (Baker and Wise, 2005; Oppel *et al.* 2011; Tuck *et al.* 2001; Zydelis *et al.* 2009), predation by invasive predators (predominantly rats *Rattus rattus* and feral cats *Felis catus*) (Cuthbert, 2002; Keitt *et al.* 2002; Jones *et al.* 2008; Oppel *et al.* 2011), high and increasing levels of light pollution and disturbance to colonies resulting from tourist and residential development (Oppel *et al.* 2011), competition with fisheries, oil spills and development and disturbance at breeding colonies, Less prominent threats include competition for nest sites with Cory's shearwater, collisions with wind turbines, pollution and contaminants, environmental events (such as toxic algal blooms and geological erosion)

and illegal hunting. The threats affecting the species, their corresponding threat status scores, and the countries affected are listed in Appendix 1. Threat status scores for each country affected are listed in Appendix 2.

INCIDENTAL FISHING BYCATCH

Despite mortality in long-lines and fishing nets having been identified as one of the main causes of seabird mortality at a global level (Gilman, 2001; Cooper *et al.* 2003), data on Yelkouan shearwater bycatch (the catch of non-target species) and fishing effort in the Mediterranean is limited (Lleonart and Maynou, 2003; Franquesa *et al.* 2008). However, a recent study in France and Malta (Oppel *et al.* 2011) implicated fishing bycatch as a critical cause of mortality for Yelkouan shearwaters, because most of the adult mortality of birds breeding in Malta occurred during the non-breeding season. This pattern is consistent with the presumed cause of low adult survival probabilities in the Balearic shearwater (Oro *et al.* 2004; Tavecchia *et al.* 2008).

A study in the 1970s estimated the accidental bycatch of Yelkouan shearwaters off the south-east coast of France to be 800 per year (Besson, 1973). More recently, some shearwater deaths by long-lines have also been reported in the Gulf of Lion, in the Straits of Bonifacio, in Italian waters and around Malta (Bourgeois and Vidal 2008).

The impact of incidental bycatch has been detected in Spain in more recent years, though it is likely that this has been impacting the species for a relatively long time. Yelkouan shearwaters are affected by demersal long-liners in particular (Louzao *et al.* In press; Arcos *et al.* 2008), often on an irregular basis, but can impact fairly large numbers at a time: in May 2009, 40-50 Yelkouan shearwaters were reported to have been caught in l'Escala, N Catalonia (ICES, 2008), along with individuals of Balearic shearwater *P. mauretanicus*; in May 2011, ca. 100 birds were caught near Barcelona (ICES, 2008).

A 2007 LIFE Nature project in Malta found that artisanal long-line and bottom-line fisheries in Malta appear to kill very few Yelkouan shearwaters (Borg *et al.* 2010; Darmanin *et al.* 2010), although the impact of bycatch in other types of artisanal fisheries or industrial fishing fleets in international waters was not assessed.

Since Procellariiforms are generally long-lived, their populations are highly sensitive to changes in adult survival. The increased adult mortality induced by accidental bycatch is therefore a significant danger to them and a highly important threat (Lebreton, 2000).

Small-scale fishing bycatch is a threat to the species as the hooks used are smaller than in larg-scale fishing and are a particular threat to this small species.

Through expert consultation, this assessment identified small-scale fishing bycatch as the highest threat (which is possibly increasing) to Yelkouan shearwaters in Italy (Baccetti, N. pers. comm.), Greece (HOS, 2008), Malta (Borg *et al.* 2010; Oppel, *et al.* 2011;Raine *et al.*

2009; Raine *et al.* 2011. Sultana *et al.*1975; Sultana and Gauci, 1982), Turkey (Şahin, D. pers. comm.), Cyprus (non-breeding; Hellicar, M. and Miltiadou, M. pers. comm.) and Spain (Louzao *et al.* In press; Arcos *et al.* 2008; ICES 2008).

Large-scale fishing bycatch is also a high threat in two countries - France (Bourgeois and Vidal 2008; Oppel *et al.* 2011) and Bulgaria (M. Madjaro pers. comm.).

INTRODUCED PREDATORS

Alien species are now recognized as the major threat to island biodiversity worldwide (Williamson 1996; Whittaker and Fernandez- Palacios 2007), being responsible for several extirpations and extinctions of mammals, birds and reptiles (Courchamp *et al.* 2003; Donlan and Wilcox 2008; Harris 2009). Due to their low productivity, slow reproductive maturity and a lack of predator defences, seabirds are highly vulnerable to introduced predators (Moors and Atkinson 1984). For long-lived seabirds, such as shearwaters, the impact of alien predators is dramatically increased when adult individuals, and not only eggs or chicks, are affected by predation (Warham 1990; Cuthbert *et al.* 2001). Studies have recently shown that several *Puffinus* populations are seriously threatened by introduced predators (Mayol-Serra *et al.* 2000; Ainley *et al.* 2001; Cuthbert 2002; Keitt *et al.* 2002; Martinez-Gomez and Jacobsen 2004). Indeed Yelkouan shearwaters have been shown to suffer substantial predation pressure by introduced mammalian predators on breeding grounds (Bourgeois *et al.* 2008; Bonnaud *et al.* 2009). This assessment identified predation by invasive alien species as a high, and possibly increasing, threat to the species in Italy, Greece, Malta, France, Croatia and Spain. Introduced predators affect the species' adult mortality and reproductive success.

Predation by American Mink *Neovison vison*, should this species arrive, is a potential threat to the species in Sardinia, where islands holding the main colonies are all very close to land (N. Baccetti pers. comm.).

PREDATION BY RATS

The black rat *Rattus rattus* is by far the most widespread terrestrial mammal on the Mediterranean islands and is present on all islands with Yelkouan shearwater colonies (Martin *et al.* 2000). Observed population declines of Yelkouan shearwater in Italy have been attributed to alien predators, predominantly rats (Capizzi *et al.* 2010; Sultana and Borg, 2006), which can heavily limit reproductive success by predation upon chicks and eggs (e.g. Thibault, 1995; Martin *et al.* 2000; Igual *et al.* 2006; Baccetti *et al.* 2009, but see also Ruffino *et al.* 2008; Jones *et al.* 2008; Ruffino *et al.* 2009). Breeding success was reported to be zero due to rat predation on the Tavolara islands in 2006 and on Montecristo Island in some years (Bourgeois and Vidal 2008). Rats have been cited as the main cause of breeding failure in the largest Maltese colony (Borg, J.J. pers. comm.).

The improvement of reproductive output for shearwater colonies deriving from rat removal has been demonstrated in past studies (e.g. Igual *et al.* 2006; Pascal *et al.* 2008; Baccetti *et al.* 2009). Other factors than human introduction that benefit rats are related to breeding gulls (e.g. prey remains, pellets, dead chicks etc.) or indirectly, favouring nitrophilous and/or invasive plant species that may also sustain large rat numbers (Cassaing *et al.* 2005).

Predation by rats *R. rattus* has been identified in this assessment as a high threat in Italy (Capizzi *et al.* 2010), Greece (HOS, 2008), Malta (Borg *et al.* 2010; Raine *et al.* 2009), France (C. Perone pers. comm.) and Croatia (Budinski, I. pers. comm.). Many islands in Turkey have rats, so if a breeding population is found in Turkey, then it is likely that rats will affect the breeding population.

PREDATION BY FERAL CATS

Feral cats *Felis catus* are recognized as among the most detrimental alien predators for seabirds on islands (Moors and Atkinson, 1984; Blackburn *et al.* 2004), particularly for petrel and shearwater species, which are often naive and clumsy when on the ground (Mayol-Serra *et al.* 2000; Ainley *et al.* 2001; Keitt *et al.* 2002).

On the Hyères islands (French Mediterranean coast) feral cats have been identified as the primary predator of Yelkouan shearwaters: shearwater remains were found in up to 6% of cat scats, representing hundreds of adults killed each year, especially during the pre-breeding period (Tranchant *et al.* 2003; Bonnaud *et al.* 2007). However, Oppel *et al.* 2011 found that the removal of feral cats as predators of shearwaters on one of the study islands in the Hyères archipelago resulted in only a small increase of mean annual survival probability of breeders. In addition, annual survival of breeders on the now predator-free Port-Cros Island remained below what is needed to maintain a stable population, leading to the assumption that the greatest threat to the persistence of the Yelkouan shearwater colonies in France is human-caused mortality at sea (Oppel et a., 2011).

Predation by feral cats *F. catus* has been identified in this assessment as a high threat, but only in France (Bourgeois, K. pers. comm.; Bonnaud *et al.* 2009; Bonnaud *et al.* in review; Bourgeois and Vidal 2008; Ruffino *et al.* 2009; Vidal, 1985) and Spain (J. M. Arcos pers. comm.).

DISTURBANCE FROM TOURISM AND URBANIZATION

Increasing tourism and coastal urbanization in the Mediterranean create sound and light disturbances at colonies and damages fragile breeding habitats (James, 1984; Gallo-Orsi, 2003; Bourgeois and Vidal 2008). Residential and commercial development (for tourism and recreation areas, housing and urban areas, and industrial areas) is a high, and increasing threat to the species particularly in Malta (Raine *et al.* 2007; Raine *et al.* 2009; Borg *et al.* 2010; Raine *et al.* 2010; Oppel *et al.* 2011; Raine *et al.* 2011), Bulgaria (Madjarov, M. pers.

comm.) and Spain (J. M. Arcos pers. comm.). Tourism development is a low threat in Croatia (I. Budinski pers. comm.).

OIL SPILLS, POLLUTION AND CONTAMINANTS

The gregarious behaviour of this species makes it particularly vulnerable to oil spills and high levels of some contaminants have been detected in Mediterranean seabird tissues, thus weakening adults and decreasing breeding success (Lambertini and Leonzio, 1986; Renzoni and Massa, 1993). Intense maritime traffic in the Mediterranean increases the risk of oil spills (e.g. a few small-scale oil spills occurred off Tarragona in November-January 2010-11; Arcos, J. M. pers. comm.), particularly in the Bosporus since it is one of the most intensely shipped areas in the Mediterranean and is also an area with a large congregation of Yelkouan shearwaters. The dumping of ballast water is also a threat to the species as it contaminates the water. Although to date there have been few reported cases of Yelkouan shearwaters being directly affected, it highlights the potential risk to the species. Oil spills have been reported as a low/ medium risk to the species, since it is a potential rather than a current threat. There have been little studies on the impacts of oil spills on Yelkouan shearwater. Previous cases of oil spills in Italy have been reported to affect <10% of the population, and so this has been selected as a low threat in this country (N. Baccetti pers. comm.). However, it has the potential to affect a larger proportion of the population in the future and it which case would be a much higher threat. The impact of oil spills in Greece has been assessed as a high threat as it may affect a large proportion (e.g. 90%) of the population should a serious oil spill occur (J. Fric pers. comm.). It should be noted that the threat assessment for Italy has been based on previous evidence, whereas the assessment for Greece has been based on a hypothetical severe situation. Oil spills have also been reported to be a high threat in Spain (Arcos, J. M. pers. comm.), a medium risk in Croatia (I. Budinski and R. Crnkovic pers. comm.) and Turkey (D. Şahin and O. Onmuş pers. comm.) and a low threat in Malta (Borg *et al.* 2010; Oppel *et al.* 2011; Raine *et al.* 2009).

High levels of PCB contaminants have been reported in gull species in Turkey (e.g. Albanis *et al.* 2003) and so pollution and contaminants has been identified as a medium threat in Turkey (O. Onmuş pers. comm..).

COMPETITION FROM FISHERIES

Reproductive success may be affected by reduced food availability due to competition from fisheries (Oro *et al.* 1996; Regehr and Montevecchi 1997; Oro 1999), since the main fish species caught by fisheries in the Mediterranean (Lleonart and Maynou, 2003) are the main prey items of Yelkouan shearwaters (Zotier, 1997; Conejero and Beaubrun, 2000; Stipcevic and Lukac, 2001).Such resource competition can induce changes in food availability and may affect seabird breeding success, adult survivorship, colony attendance and prey switching (Furness, 2003; Karpouzi, 2005).However, it should be noted that this reduction of food availability is partly compensated for in the short term by use of discards, although this is

unlikely to be sustainable long-term (Montevecchi 2002). Resource competition in the form of fishing has been identified as a high threat in Greece (Fric, J. pers. comm.), Turkey (D. Şahin pers. comm.) and Spain (Arcos, J. M. pers. comm.; Arcos *et al.* 2008) which is increasing due to severe overfishing of some stocks. Small pelagic bird species have been particularly affected by this threat over the last 10 years (Arcos *et al.* 2008). In Turkey, illegal fishing and purse seine fishing have been reported to cause injuries to the birds (O. Onmuş pers. comm.).

INSHORE, ONSHORE AND OFFSHORE WIND FARMS

The construction and operation of inshore, onshore and offshore wind farms is an increasing threat, mainly in Italy (N. Baccetti pers. comm.), Greece (Fric, J. pers. comm.), Malta (Raine *et al.* 2010), Sammut, M. pers. comm) and Spain (Arcos, J. M. pers. comm.). It is predicted that this threat impacts the species through general disturbance, increasing species mortality, loss and degradation of breeding habitat and degradation of marine habitat. There are an increasing number of wind farm projects, which could potentially impact the species. However, this is so far a precautionary concern, as no evidence yet exists.

LIGHT POLLUTION

Light pollution adversely affects seabirds worldwide and has become an increasingly serious problem as coastal areas come under greater pressure from tourist and residential developments (Reed *et al.* 1985; Le Corre *et al.* 2002; Fontaine *et al.* 2011). Artificial lights from a wide range of sources (e.g. street lights, airports, harbours) may disorientate nocturnal seabirds which rely on visual cues for navigation, resulting in grounding through exhaustion (Raine *et al.* 2007; Rodriguez and Rodriguez 2009). Light pollution may pose a threat to fledgling survival in particular as light-induced mortality of fledgling Cory's shearwaters has been shown high in the Canary archipelago, with fledglings representing 96.4% of grounded birds (Rodriguez and Rodriguez 2009). It has been noted, however, that for smaller species such as storm-petrels, adult birds are more often grounded than fledglings (Rodriguez and Rodriguez 2009).

Light pollution has a significant impact on many nocturnal seabirds including shearwaters, petrels, and some gull species, with at least 21 species of Procellariiformes known to be affected (Reed *et al.* 1985). Grounding from light-induced disorientation frequently leads to death from injury, starvation or predation (Rodriguez and Rodriguez 2009). Light pollution has been identified as a high and increasing threat which directly affects Yelkouan shearwater mortality, particularly in Italy (Baccetti, N. pers. comm.) and Malta (Raine *et al.* 2007).

ILLEGAL HUNTING

Illegal hunting is a serious and widespread problem in Malta, with poachers targeting species on land and at sea (Magnin 1986; Raine 2007; Raine and Temuge 2009). Poachers have been known to target rafting groups of shearwaters from speedboats for entertainment and also spotlighting the birds from cliffs at night (Borg *et al.* 2010). Nesting birds are also taken during the breeding season to be killed and stuffed for private collections (Borg *et al.* 2010). However, hunting of the species is now limited due to the species being legally protected, as well as increased wardening and surveillance at colonies.

SUBSISTENCE HARVESTING

Despite having been cited as a cause of several past colony extinctions (Vigne *et al.* 1991; Arcamone and Sposimo 2002), small-scale/ subsistence harvesting of Yelkouan shearwaters has not been identified as a threat to the species.

OTHER THREATS

Other low impact threats identified in this assessment include environmental events such as geological erosion, mainly in Malta (John Borg pers. comm.), and toxic algae blooms, which can increase due to human alterations of the environment (eutrophication, increase of water temperature), and have been reported as a cause of mortality for this species in Italy (N. Baccetti pers. comm.) and Catalonia (Gutiérrez, 2007). Competition for breeding habitat with Cory's shearwater *Calonectris diomedea* has been reported in Italy (N. Baccetti pers. comm.), Malta (J. J. Borg pers. comm.),) and Croatia (I. Budinski pers. comm.), although Bourgeois and Vidal (2007) did not find any apparent competition between the two shearwater species in their study nest-cavity selection and breeding success of the two species in the Hyeres islands, France. Predation by native predators (which is rare; Vidal and Bayle, 1997; Zotier, 1997; Pieper and Ristow, 2002) has not been reported as a threat.

It should also be noted that due to spatial variation in these known or suspected mortality factors, Yelkouan shearwater survival probabilities may vary over relatively small spatial scales (Tavecchia *et al.* 2008). Information on adult survival probabilities from several colonies is therefore urgently needed to assess the impact of threats and the population status of the Yelkouan shearwater.

EU funded projects

Eight LIFE[35] projects have been implemented in Malta (2 projects; also an ERDF project), France (2), Italy (3), Greece (1), Spain (2) and Slovenia (1) which benefit the Yelkouan shearwater. Details for all these projects can be obtained from the LIFE project database at: http://ec.europa.eu/environment/life/project/Projects/index.cfm

A study tracking Yelkouan shearwaters using geolocators has been implemented in France, funded by the French Marine Protected Areas Agency. A study on marine Exclusive Economic Zones (EEZs) in France is also now starting.

The UK BirdLife partner, RSPB, has funded a small Yelkouan shearwater project in the Bosporus.

Stakeholders

Important stakeholders that have an interest in the species have been identified through literature review and consultation with species experts. These stakeholders fall roughly into 13 categories: National governments; regional and local governments; National Park/ Protected Area managers; BirdLife partners; Other NGOs; Research institutes, groups and individuals; Industrial fisheries; Local (artisanal) fishermen; Tourist businesses (tourism companies, hoteliers, fish restaurants, tourists); Wind energy community; Island inhabitants; and oil companies. A full list of identified stakeholders and the recommended contact approach is available in Appendix 3.

In order to ensure stakeholders are included in the population assessment process, it is important to recognise and consider the diversity in stakeholder groups and interests, and engage relevant stakeholders in appropriate parts of the process.

There are three main stages in this process for which stakeholders should be involved: initial data collection; attendance at species workshops; and review and revision of the population assessment documents. It is important to identify which stakeholders are important to each step of the process and to engage them accordingly. To do so, social, cultural and environmental factors need to be considered. Of particular importance at all stages is language. The most obvious issue with language is the simple difficulty in understanding the discussion. In addition, language has a strong influence in increasing or reducing barriers. Definitions of concepts are often set linguistically, affecting how issues are understood and approached. Therefore in all stages of the process, it should be ensured that the language of

[35] LIFE Nature Project codes: LIFE06/NAT/MT/000097; LIFE03/NAT/F/000102; LIFE03/NAT/F/000105; LIFE08/NAT/IT/000353; LIFE97/NAT/IT/004153; LIFE07/NAT/GR/000285; LIFE10/NAT/MT/000090; LIFE10/NAT/SI/000141

stakeholders is addressed and documents and workshops are translated accurately. Cultural differences also need to be considered, including values, beliefs, interests and level of understanding. As such, it is important to approach stakeholders in the most appropriate way, whether through local associations (e.g. hunting associations, fishing associations, wind energy associations, etc), in-country BirdLife partners, local governments, local experts, etc.

Conservation Actions Information

Conservation Actions Underway

A new IBA project has been started in Malta

An EU Life/BirdLife Malta project aimed at conserving a colony of c. 500 pairs at Rdumtal-Madonna, Malta, has recently completed.

An EU Life rat eradication project is being implemented at Montecristo Island, Italy during 2011-2012.

Conservation Actions Proposed

- As a precaution, control or if possible eradicate feral cats and rats at breeding colonies, according to a priority analysis and at sites with evidence of predation.
- Encourage policymakers to implement and enforce measures that reduce accidental bycatch of Yelkouan shearwaters and other seabirds in commercial fishing operations in the Mediterranean and Black seas.
- Identify and implement measures to reduce/ mitigate the effects of light pollution on the species (e.g. see Raine *et al.* 2007).

Research and monitoring needed

Research

- Population size
    - Determine whether the species breeds in Turkey – **High priority**
    - Search for colonies at sites in Turkey, Greece and Tunisia – **High priority**
    - Carry out population censuses at breeding colonies for which there is currently little reliable, up-to-date population size data, particularly those in Sicily and Greece – **High priority**
    - Continue breeding and non-breeding period counts at the Bosporus – **High priority**

- Conduct breeding and non-breeding counts at other bottleneck sites – **Medium priority**
- Confirm new colonies in Tunisia (Zembretta) and obtain reliable population estimates – **Medium priority**
- Confirm or reject reported colony extinctions (including at San Pietro island, Italy; and Filfl islet, Malta) – **Low priority**

- Methodology
  - Reach consensus and develop recommendations and guidance on best-practice census methodology – **High priority**
  - Provide guidance on timing of counts of non-breeding population estimates – **Medium priority**
    - Ensure standardisation on the use of seasonal terminology: 'non-breeding' population refers to moulting individuals in the non-breeding (moulting period) season rather than non-breeders during the breeding season. The term 'wintering' should be avoided as this can lead to confusion (e.g. between non-breeding in August-October time and egg-laying in February)
  - Ensure contribution of all tracking data to BirdLife's seabird tracking database[36] – **Medium priority**
  - Encourage collaboration between Mediterranean and Ukrainian and Bulgarian ornithologists to obtain more data on non-breeding populations in the Black Sea – **Low priority**

- Threats
  - Quantify extent of mortality from accidental bycatch through survey programmes, questionnaires to fishermen, bycatch rates, etc – **High priority**
  - Research the impact of introduced predators across breeding range, particularly the long-term population dynamics and interactions between Yelkouan shearwater and rats – **High priority**
  - Research impact of predator control/ eradication programmes on annual survival and breeding success at different sites, as natural experiments to determine relative importance of this threat – **Medium priority**
  - Improve data on fish stocks and/ or competition with fisheries – **Medium priority**
  - Conduct research on scale of Mediterranean fisheries in order to assess correlation between species population trends and trends in fishing effort – **Medium priority**
  - Conduct genetic analysis on rat colonies to evaluate success of eradication and control programmes – **Medium priority**

- Demographic parameters
  - Research ecological requirements and carry out extensive demographic monitoring, particularly looking at impact of threats on breeding success and adult survival probabilities and the relative importance of these parameters on population declines – **High priority**

[36] Accessible at: http://www.seabirdtracking.org/

        - Select a representative number of breeding colonies to conduct demographic studies
        - Conduct simultaneous robust monitoring of population size at the same colonies
    - Gather oceanographic and fisheries data (identification of prey, distribution of prey, which fish species are being fished, etc.) across the Mediterranean and relate it to seabird data distribution (including which are important areas for the species) – **Medium/ High priority**

Monitoring

    - Carry out a long-term population assessment of at-sea populations through boat-based surveys and based on existing studies from geolocator data from Italy (Zenatello *et al.* in prep. N. Baccetti pers. comm.), Malta (Borg in prep), and France (Bourgeois & Gonzalez-Solis in prep) to identify distribution and 'hotspots' at sea – **High priority**
    - Conduct an assessment in the Adriatic of wintering/ non-breeding birds based on geolocator data – **Medium priority**

- Population trends
    - Conduct monitoring at key breeding sites in Greece, Croatia and Tunisia to determine population trends – **High priority**
    - If breeding colonies are found in Turkey, monitoring should be conducted to determine population trends – **Medium priority**
    - Utilise geolocator data to complement non-breeding counts conducted in the Bosporus – **Medium priority**
    - Study variability of the non-breeding season across several years for birds from same and/ or different known colonies – **Medium priority**

- Threats
    - Monitor additional threats including light pollution, habitat loss, competition with fisheries and the development of onshore and offshore wind farms – **Medium priority**
    - Monitor illegal hunting in Malta and it's impacts on the species **– Low priority**

Contributors:

Joe Sultana (BirdLife Malta); Jose Manuel Arcos (SEO/BirdLife); Andrea Corso (LIPU); Robert Crnković (Hrvatsko ornitološkodruštvo [Croatian Ornithological Society]); Dilek Şahin (Istanbul University Institıde of Life Science); Jose Tavares (RSPB); Minko Madjarov (Bulgarian Society for the Protection of Birds); Ivan Budinski (Association for Biological Research – BIOM); Martin Hellicar (BirdLife Cyprus); Michael Miltiadou (BirdLife Cyprus); Karen Bourgeois (A dos d'Îles [Association for the study and conservation of insular biodiversity]); Jakob Fric (Hellenic Ornithological Society); Nicola Baccetti (ISPRA - Instituto Superiore Per La Ricerca E Protezione Ambientale); John J. Borg (BirdLife Malta); Dr Andre

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Population Assessment for Cory's shearwater *Calonectris diomedea*

Background

Cory's shearwater (*Calonectris diomedea*) is a large shearwater in the seabird family Procellariidae. It breeds on islands and cliffs in the Mediterranean, as well as having outposts in the Atlantic at the Canary Islands (Spain), and in Portugal, in the Madeira archipelago (Selvagens and Desertas), Berlengas Islands and the Azores. There are two subspecies of Cory's shearwater - the Mediterranean subspecies *Calonectris diomedea diomedea*, and the Atlantic subspecies *Calonectris diomedea borealis*. *C. d. diomedea* is known to breed in Algeria, Croatia, France, Greece, Italy, Malta, Spain (excluding the Canary Islands), Tunisia and Turkey. *C. d. borealis* breeds in Portugal (including the Azores, Madeira and Berlengas) and the Canary Islands.

Rationale for 2011 Population Assessment

Cory's shearwater has been identified as having an unfavourable conservation status in Europe as it is listed in Annex I of the Birds Directive and reports indicate that mortality rates may have increased in recent years, particularly due to incidental fishing bycatch. A population assessment for this species is required before prepared before Action Plans are produced/ updated particularly as the current size and trend of many national populations is unclear. Under the ongoing contract ENV.B.2/SER/2009/0076r on Scientific and technical assistance supporting species protection under the Birds Directive, an element of the task is data collection and assessment of the population status of Cory's shearwater since a large proportion of the species' range lies within the EU.

Habitat Information

Cory's shearwater breeds mainly on barren offshore islands, scrub-covered islets and islands in crevices in limestone as well as mainland rocky sea cliffs. The species builds its nests on holes on the ground or under big rocks, occupying cliffs, caves and boulder fields. After breeding, birds from the Atlantic colonies predominantly winter off the coast of South America and southern Africa (Dias *et al*. 2011), with some individuals from the Mediterranean wintering in the area of the Canary current (González-Solís *et al*. 2007).

Population size

C. d. diomedea

Algeria –350- 500 breeding pairs on Habibas isles, (Mante *et al.* 2007), based on direct observation of nests over all islands during the 2004 breeding season (good quality data). The previous estimate is ca. 1,070 pairs (Isenmann and Moali, 2000); however this is a very rough estimate. There are no IBAs for the species in Algeria.

Croatia – 1,000-1,500 pairs (Budinski *et al.* 2010) based on the latest counts at colonies between 2004 and 2011, conducted during the breeding period (April - August). The quality of this data is medium (estimated), however, the survey was conducted following rat control activities and so the population estimate is slightly higher than in previous years. The population estimate will be re-assessed in the next few years to determine whether this increase is sustained or merely an artefact of counting during the fledgling period combined with decreased chick mortality (I. Budinski pers. comm.; R. Crnković pers. comm.). The national population size for Croatia was previously estimated at 800-1,000 pairs (Lukac (2003) pers comm to BirdLife International, 2004). There are two proposed IBAs for the species in Croatia.

France – 1,044-1,293 pairs (Cadiou *et al.* 2004) based on counts between 1996-2001 conducted during the breeding period as part of the national seabird census. The quality of this data is good (observed) (P. Yésou pers. comm.). A updated study of the population in France is currently being completed by GISOM, the results of which are expected at the end of 2011 (M. Thevenet pers. comm.). The national population size for France was previously estimated at 970-1200 pairs (Dubois *et al.* 2000 [referenced in BirdLife International, 2004]). There are five IBAs for the species in France.

Greece – 5,200-8,300 pairs (Hellenic Ornithological Society, 2009) based on latest counts conducted between 1995-2011 during the breeding period (May-July). This figure was obtained through estimation of nest density by counting at colonies (using quadrant method) and is supported by raft counts and ESAS counts at sea and so the figure is of medium (estimated) quality (J. Fric pers. comm.). Many of the colonies are fairly inaccessible and so the estimate is likely to be an underestimate of actual numbers. The national population size for Greece was previously estimated at 5,000 pairs (Ristow and Wink, 1989 [referenced in BirdLife International,

2004; Brooke, 2004; BirdLife International, 2000; Snow and Perrins 1998; Tucker and Heath, 1994]). There are eight IBAs for the species in Greece.

Italy – 13,344-21,873 pairs (Baccetti *et al.* 2009) based on an average value over a repeated number of censuses that were conducted during 2000-2008 over the breeding period. This figure was obtained through a literature review of the most recent information on local breeding records and colony size of the species, including new unpublished estimates for several islands.

Some of these records are based on counts of rafts at sea and so are of Medium (inferred) quality, although the majority of records are taken from colony counts at confirmed breeding colonies (N. Baccetti pers. comm.; M. Gustin pers. comm.; J. Cecere pers. comm.). The largest recorded breeding colony is on Linosa Island, Sicily (c.10,000 pairs estimated by Lincoln index; B. Massa [Own Data] 2007, from Baccetti *et al.* 2009), although there are no precise estimates of the population size for this colony. The national population size for Italy was previously estimated at 15,000-18,000 pairs (LIPU and WWF, 1999 referenced in Brichetti and Fracasso, 2003; BirdLife International, 2004; BirdLife International, 2000; Snow and Perrins, 1998: Tucker and Heath, 1994]). There are seven IBAs for the species in Italy.

Malta – 4,100 pairs (Sultana *et al.* 2011) based on the latest count in 2011 conducted during the breeding period (February-May). This figure was obtained through counts at colonies as well as seasonal counting of rafting birds and so is of good (estimated) quality. (J. Sultana pers. comm.; J.J. Borg pers. comm.; A. Raine pers. comm.). The largest known breeding colony is on Ta'Cenc cliffs (IBA) on Gozo island (1,000 pairs). The national population size for Malta was previously estimated at 6,900-7,130 pairs (Borg and Sultana, 2002 [referenced in BirdLife International, 2004 Regular surveys are carried out in Malta and so population estimates have been updated on a relatively regular basis since the 1980s. There are six IBAs for the species in Malta.

Spain (Mediterranean region) – A total of 3,000-8,000 pairs of *C. d. diomedea* breed in the Mediterranean region of Spain (including the Alboran Sea) (Aguilar, 1991; Carboneras, 2003; Arcos *et al.* 2009) based on an average value over a repeated number of censuses carried out during the breeding period between 1991 and 2001. This figure was obtained through estimating numbers of birds at colonies from rafts and so is of medium (estimated quality) (J. M. Arcos pers. comm.; D. Macias Lopez pers. comm.; I. Munilla pers. comm.) Excluding NW Menorca, the population in Mediterranean Spain is estimated at 1883-2334 breeding pairs (i.e. including the rest of the Balearic Islands, Columbretes, Palomas and Chafarinas) (Arcos *et al.*

2009). Despite being the largest colony in Mediterranean Spain, there is a lack of recent data on the number of breeding pairs in NW Menorca, with the previous estimate of 1000-6000 pairs obtained in 1991 (Aguilar 1991; Carboneras 2003), although recent work suggests that the real figure is likely to be closer to the minimum value (J. M. Arcos pers. comm.). GPS tracking of breeding individuals from the NW Menorcan colony has been conducted to detect locations of at-sea rafts of colony breeders (who are known to take short feeding trips), however, a proper census of this colony is needed in order to obtain a reliable breeding population estimate. The population on the Archipelago of Cabrera is estimated at 901-904 pairs based on the latest counts at colonies during the breeding period (February-October) from 2000-2008 (Good quality data from observations) (M. McMinn Grive pers. comm.; A. Rodríguez Molina pers. comm.).

The population size of *C. d. diomedea* in Mediterranean Spain was previously estimated at 2,000-10,000 pairs (Martí and del Moral 2003; Madrono *et al.* 2004 [referenced in BirdLife International 2004]). There are 7 IBAs for the species in Mediterranean Spain.

Three new breeding sites are suspected for *C. d. diomedea* in the Atlantic (north-west Spain), at which the species has been reported trying to lay (J. M. Arcos pers. comm.), however there has been only a very small amount of laying and more research needs to be carried out on these populations before any conclusions can be drawn.

Tunisia- 113,720-176,750 occupied nests (Defos du Rau/ Initiative PIM 2010 *et al.* in prep. 2010) are estimated on the island of Zembra. This figure has been estimated through line-transect distance sampling of nests at the colony in June 2010. 769 occupied nests were counted (over a systematic grid of 174 30m line-transects, spaced 150m apart, with an effective strip width of c.3m), resulting in an estimate of abundance of 141,780 occupied nests across the island (with 95% Confidence Intervals: 113,720-176,750). It is suspected that this may in fact be a slight underestimation due to the lack of sampling on some inaccessible boulder areas which are likely to hold larger numbers of nests and since apparently unoccupied nests were not included in the final estimate. This apparent increase in population size is due to improved methods rather than a genuine population increase. Zembra Island is now suspected to be the largest colony of Cory's shearwater in the world and so is of significant conservation importance. There are also 250-300 pairs on the archipelago of Galite (P. Vidal & Y. Tranchant, Observation ornithologiques sur l'Archipel de la Galite, PIM Initiative, 2008).The previous estimate for Tunisia was 25,000 pairs on Zembra island (Isenmann and Moali 2000). There is one IBA for the species in Tunisia, covering Zembra and Zembretta Islands

Turkey– There are no confirmed breeding records for Cory's shearwater in Turkey and there are currently no plans for it to be studied in the country. It is estimated that the breeding population

size is 0-? pairs since the breeding population size is likely to be relatively insignificant (J. P. Tavares pers. comm.). The previous population estimate was 0-200 pairs (BirdLife International 2004), Kirwan *et al.* 2008 state that Cory's shearwater is probably significantly under-recorded in Turkey and possibly nests along the Mediterranean and Aegean coasts although there are no confirmed breeding records. There are no IBAs for the species in Turkey.

C. d. borealis

Portugal – A total of c.220,100-221,300 pairs of *C. d. borealis* breed in Portugal.

There are an estimated 188,000 pairs breeding in the Azores (on all the islands; Monteiro *et al.* 1996), based on counts (medium quality, estimated data) of rafts at sea in 1996 conducted during the breeding period (July-mid August) (Monteiro et al. unpubl. data; J. Bried pers. comm.). The colonies in the Azores are fairly inaccessible and so colony counts have not yet been conducted. A more recent study in 2001 reported a breeding population estimate of 100,000 pairs (Bolton 2001), but it is considered not as accurate as the 1996 estimate due to the extrapolation method (M. C. Magalhães pers. comm.). During the 1996 study, a parallel investigation of the raft composition was conducted and the proportion of breeders, non-breeders and failed breeders was estimated. These studies were not conducted during the 2001 count and so it is unknown whether the rafts surveyed comprised all of the birds from the colony or if some individuals were rafting elsewhere.

The species occurs throughout the Madeira archipelago with a population that reaches c.31,000-32,000 pairs, based on latest counts at colonies on Selvagem Grande and Selvagem Pequena conducted during the breeding period between 2000 and 2010 as well as suspected numbers in Desertas, Madeira and Porto Santo Island and so this estimate is of medium quality (D. Menezes pers. comm.).

On Madeira Island, the population is estimated between 2,200 and 3,800 individuals (Geraldes, 2000). There are currently no surveys that allow an assessment of the actual population of the Desertas Islands and Porto Santo, but a minimum of 3,000 and 1,000 individuals, respectively, is suspected (Oliveira and Menezes 2004).

The breeding population on Selvagem Pequena is estimated at 227 pairs (Catry *et al.* 2010), based on latest counts. The population on Selvagen Grande is estimated at 29,540 pairs (Granadeiro *et al.* 2006), based on a survey in June 2005. This is a large increase from the previous estimate of 15,750 pairs in 1998 (Mougin and Mougin, 2000). Selvagem Grande is now known to be of major importance for the conservation of this species. Previous estimates put the Madeira archipelago population number at 16,500-25,000 pairs, with 15,750 pairs in the Selvagem Islands (Mougin and Mougin, 2000).

There are 1,000-1,100 pairs of *C. d. borealis* in the Berlengas archipelago, just off the Portuguese mainland coast (SPEA 2011; M. Lecoq pers. comm.), based on the latest counts at colonies in 2005 and 2010-2011 during the breeding period (Lecoq *et al*. 2010; M. Lecoq pers. comm.).

The first systematic survey of the archipelago estimated the population at 180-220 pairs in 1987 (Granadeiro 1991). Based on an exhaustive survey in June 2005 the population was then estimated at 850 pairs (Lecoq *et al.* 2010). The Berlengas Islands were surveyed again in 2010 and 2011 when the small islets around the two main breeding colonies (Berlenga and Farilhão Grande) were counted and a further 170-210 pairs were found (M. Lecoq pers. comm.). The population estimate for Berlenga island is 300 pairs (Lecoq 2010; Lecoq *et al.* 2010), obtained through counts at colonies in 2005 and 2010 during early incubation (June) and so is of a good (observed) quality (I. Ramirez pers. comm.). The population estimate for Farilhão Grande islet is 500-550 pairs (Lecoq *et al.* 2010), obtained in 2005 through intensive counts during the early incubating period (good quality observed data).

The national population size for Portugal was previously estimated at 188,200-188,250 pairs (Lecoq, 2002; Monteiro *et al.* unpub. [referenced in BirdLife International 2004]). There are twenty-four IBAs for the species in Portugal – twenty in the Azores, three in the Madeiran archipelago, and one on the mainland (including the Berlengas).

Spain (Canary Islands) – A total of 30,000 pairs of *C. d. borealis* breed in the Canary Islands (Delgado *et al.* 1987; Martin and Lorenzo, 2001), but this is considered a fairly conservative estimate (J. M. Arcos pers. comm.). This figure was obtained through counts at colonies (number of occupied nests) from 1987-1991, conducted during the breeding period (May-October) and is of poor (suspected) quality (M. Lopez Darias pers. comm.; J. M. Arcos pers. comm.). The Northern islets of Lanzarote (Chinijo Archipelago Natural Park) constitute the largest breeding colony, holding approximately a third of the Canarian population. An exhaustive census was conducted in the period 2000-2002, and 11,375-13,375 breeding pairs were estimated (Rodríguez *et al.* 2003). Only this main colony has been intensively surveyed as other colonies in the Canary archipelago are difficult to access. The breeding population on the island of Tenerife

has been more recently estimated at 2,000-3,000 pairs (Lorenzo, 2007), based on the latest count from 1997-2003. However, this estimate is derived from counts at sea and so is of medium (inferred) quality (Lorenzo, 2007). There are 17 IBAs for the species in the Canary Islands.

A small population of *C. d. borealis* is also known to breed on Terreros Island, south-east Spain (Gómez-Díaz *et al.* 2006) whereas on Chafarinas Islands (offshore Mediterranean Moroccan coast) part of the breeding population are *C. d. borealis* (Gómez-Díaz *et al.* 2009).

Table 11 Breeding and non-breeding population estimate of *Calonectris diomedea* by country

Country	*Breeding population in 1994 (pairs)*	*Breeding population in 2000 (pairs)*	*Breeding population in 2004 (pairs)*	*Breeding population in 2005 (pairs)*	*Current breeding population (pairs)*	*Year(s)*	*Current breeding population reference*	*Current non-breeding population (individuals)*	*Year(s)*	*Current non-breeding population reference*
Algeria*	several hundred	-	-	1,070	1,070	2000	[1]	-	-	-
Croatia*	1,000-5,000	1,000-5,000	800-1,000	800-1,000	1,000-1,500	2004-2011	[2, 3]	-	-	-
France*	810-1,060	874-1,135	970-1200	970-1200	1,044-1,293	1996-2001	[4]	-	-	-
Greece*	5,000-5,000	5,000-5,000	5,000-5,000	5000	5,200-8,300	1995-2011	[5]	50-200	2009-2011	[6]
Italy*	18,000-20,000	15,000-18,000	15,000-18,000	15,000-18,000	13,344-21,873	2000-2008	[7]	0	1980-2011	[8]
Malta*	8,000-10,000	8,000-10,000	6,090-7,130	-	4,100	2011	[9]	5,000-7,000	1983-2011	[10]
Portugal+										
Azores+	50,000-100,000	50,000-100,000	188,000	-	188,000	1996	[11, 12]	120-2,000	2005	[11;13]
Madeira+	16,500-25,000	16,500-25,000	16,500-25,000	-	31,000-32,000	2000-2010	[14, 15, 16, 17]	-	-	-

Berlengas[+]	180-220	187-242	300-450	850	1,000-1,100	2005; 2010-2011	[18, 19]	-	-	-
Spain – Mediterranean*	14,000-17,000	14,000-17,000	2,500-10,000	12,180-14,180	3,000-8,000	1991-2011	[20, 21, 22]	-	-	-
Spain – Atlantic[+] *(Canary Islands)*	30,000-30,000	30,000-30,000	30,000-30,000	-	30,000	1987-1991	[23, 24]	-	-	-
Tunisia*	20,000-25,000	-	-	20,020-25,100	113,720-176,750	2010	[25]	-	-	-
Turkey*	-	-	0-200	<200	0-?	2011	[26]	-	-	-
Mediterranean Total					142,478-222,886					
Atlantic Total					250,800-251,100					
Global Total					**392,278-473,986**					

* Mediterranean population *C. d. diomedea*

\+ Atlantic population *C. d. borealis*

1 - Isenmann and Moali 2000; 2 - Budinski *et al.* 2010; 3- Croatian Ornithological Society and Nature park Lastovo Archipelago, Unpublished project results; 4 - Cadiou *et al.* 2004; 5 - Hellenic Ornithological Society 2009; 6 - Hellenic Ornithological Society, unpublished data; 7 - Bacetti *et al.* 2009; 8 - Brichetti and Fricasso 2003; 9 - Sultana *et al.* 2011; 10 - J. J. Borg pers. comm.; 11 - Monteiro *et al.* 1996; 12 - BirdLife International 2004; 13 - Bried, J., Crochet, P.-A., Didner E. and Pedro P. unpubl. data; 14 - Catry *et al.* 2010; 15 - Granadeiro *et al.* 2006; 16 - Oliveira and Menezes 2004; 17 - Geraldes 2000; 18 - Lecoq *et al.* 2010; 19 - Lecoq 2010; 20 - Aguilar 1991; 21 - Carboneras 2003; 22 - Arcos *et al.* 2009; 23 - Delgado *et al.* 1987; 24 - Martin and Lorenzo, 2001; 25 - Defos du Rau/ Initiative PIM *et al.* in prep. 2010; 26 - J. P. Tavares pers. comm.

Global breeding population size

Previous estimates put the global population size of Cory's shearwater at around 200,000 pairs (Brooke 2004), with the Mediterranean population *C. d. diomedea* estimated at around 80,000 pairs. A recent study using distance sampling of occupied nests on Zembra Island in Tunisia has estimated the population of this colony to be around 140,000 breeding pairs. However, it should be noted that this apparent increase in population size from c.25,000 pairs (Isenmann and Moali 2000) is due to improved sampling methods rather than a genuine population increase. Thus the current data collated in this study from known breeding sites gives a global population estimate of c. 392,278-473,986 pairs for Cory's shearwater. For the Mediterranean subspecies *C. d. diomedea,* the population size is estimated at 142,478-222,886 pairs. This roughly correlates with counts of c. 600,000 individuals carried out at the strait of Gibraltar during autumn passage as the birds leave the Mediterranean basin (Navarrete 2008, J. M. Arcos pers. comm.). The Atlantic population *C.d. borealis* is estimated at 251,100-251,300 pairs. In order to accurately assess the population size of Cory's shearwater, more breeding population censuses need to be conducted, particularly at major breeding sites such as the Azores and the Canary Islands, as well as in Algeria, for which there is little reliable recent data.

Breeding population trend

A lack of data on key sites combined with the absence of regular monitoring at the major breeding colonies (particularly the Azores, Tunisia and the Canary Islands) means that it is difficult to determine a global breeding population trend for the species. However, breeding population trend data is available for c.10% of the population (from Croatia, Greece, Malta, Madeira, Berlengas, and Spain) and so the global breeding population trend has been calculated based on this data. Assuming that the population is stable in those countries for which the population trend is unknown, the overall breeding population trend appears to be fluctuating. However, it is difficult to make any firm conclusions on the global breeding population without data from the key colonies, particularly in the Azores and Tunisia. It is suspected that the population may be declining in the Azores, although this has not been confirmed and reported rapid declines (43% decline during 1996-2001; Bolton 2001 are likely to be caused by inter-annual variations in colony attendance (Chastel *et al.* 1993; Jenouvrier *et al.* 2005) along with temporal behavioural differences between census years (Bolton 2001; Fontaine *et al.* 2011). Despite the existence of potentially important threats recognised to be impacting the Azorean population, the demographic parameters and the dynamics of the Azorean population remain totally unknown on the nine main islands. Annual demographic monitoring has been conducted only on the mammal-free Vila islet, off Santa Maria Island (annual monitoring since 2002; Fontaine *et al*. 2011; J. Bried unpubl.). The importance of the Azores as a breeding locality for the species (c. 44% of total global population, and c. 75% of *C. d. borealis*) makes it necessary to fill this gap with regular monitoring.

The recent work conducted on Zembra Island in Tunisia has highlighted the importance of this site as the largest colony of Cory's shearwater in the world (holding c.30% of the total global

population and c.80% of *C. d. diomedea*). It is crucial that monitoring is conducted to determine the population trend and impact of threats on the Zembra colony. Until estimates of adult survival and breeding probabilities in Tunisia and on the main Azorean islands, as well as at other important locations (i.e. Madeira, Canary Islands and Italy), are available, any global population trend estimate for the species remains purely speculative.

By combining data for the countries for which trend information is available, it is predicted that, if the reported population trends remain constant in the future, the global breeding population is estimated to be increasing by c.30% over next 58 years, i.e. 3 generations[37], starting from 1980. At the current rate, the Mediterranean population (*C. d. diomedea*) is predicted to be declining by c.2% over 58 years (from 1980), although this is based on data from only 6% of the subpopulation. In order to obtain an accurate population trend estimate for the Mediterranean population, it is essential to obtain reliable data from all breeding populations, particularly those in Tunisia, as well as in Italy and Greece (the current estimate of stable is based on nest occupancy from only 2 sites in the Aegean and Ionian Seas). Since the majority of the Italian breeding population is concentrated on a few main colonies (primarily Linosa, Pantelleria, Capo Caccia cliffs, Toro and Pan di Zucchero), the population trend of these colonies will determine the overall trend for the species in Italy. Early results from rat eradication programmes at some colonies in Italy have reported that some small colonies have increased threefold following rat eradication efforts, and so it is such efforts at key colonies could result in an increase for the Italian population as a whole. Future research is needed to obtain reliable trends.

The Atlantic population (*C. d. borealis*) is estimated to be increasing, by c.100% over 58 years (from 1980), due predominantly to a population recovery at Selvagem Grande of an estimated 4.6% per year since 1980 (Granadeiro *et al.* 2006), when permanent wardening and strict protection were enforced on the island following intensive exploitation of the species (occurring since the 1900s [Zino 1985]). However, this is based on data from only 13% of the subpopulation and is based on the assumption that the Azorean population is stable, which is unlikely to be the case. Determining the trend in the Azores is absolutely crucial in order to estimate the global trend for *C. d. borealis*, or indeed the species as a whole.

[37] 'Generation length' refers to the average age of parents of the current cohort [i.e. newborn individuals in the population]. Generation length therefore reflects the turnover rate of breeding individuals in a population. Generation length is greater than the age at first breeding and less than the age of the oldest breeding individual

Table 12 Recent and long-term breeding population trend by country

Country	*Recent breeding population trend*	*Year(s)*	*Reference*	*Long-term breeding population trend*	*Year(s)*	*Reference*	*Recent non-breeding populatio n trend*	*Year(s)*	*Reference*	*Long-term non-breeding populatio n trend*	*Year(s)*	*Reference*
Algeria**Error! Bookmark not defined.**	-	-	-	-	-	-	-	-	-	-	-	-
Croatia**Error! Bookmark not defined.**	10-40% decrease	2004-2011	2	Unknown	2004-2011	2	-	-	-	-	-	
France**Error! Bookmark not defined.**	Possibly increasing	-	27	-	-	-	-	-	-	-	-	-
Greece**Error! Bookmark not defined.**	Stable	2007-2011	6; 28	Stable	1995-2009	6	Unknown	2009-2011	6	Unknown	2009-2011	
Italy**Error! Bookmark not defined.**	Unknown	2000-2009	7, 29	Unknown	1980-2008	7, 29	Unknown	1980-2008	7, 29	Unknown	1980-2008	7, 29
Malta**Error! Bookmark not defined.**	5-10% decreasing	1980s-2011	30, 31, 32, 33, 34	3-5% decreasing	1983-2011	30, 31, 32, 33, 34	5-8% decreasing	1983-2011	10	5-8% decreasing	1983-2011	10
Portugal[+]												

Azores+	Possibly decreasing	2002-2008	35	Unknown	1996-2008	12, 35	Unknown	2002-2011	36	Unknown	1996-2011	11
Madeira+	3-41% increasing	1996-2010	14	4.6% per year increasing	1977-2006	15	-	-	-	-	-	-
Berlengas+	165-233% increasing	2002-2005	19, 37, 38	200-400% fluctuating	1982-2010	39, 40, 41	-	-	-	-	-	-
Spain - total	4-6% decreasing	1998-1999	42	Unknown	-	-	-	-	-	-	-	-
*Mediterranean Spain**	5-15% decreasing	2000-2010	43, 44, 45, 46	5-15% decreasing	1991-2001	43, 46	-	-	-	-	-	-
Atlantic Spain *(Canary Islands)*+	Decreasing	2000-2010	47	Decreasing	1990-2010	47	-	-	-	-	-	-
Tunisia*	Unknown	-	-	Unknown	-	-	Unknown	-	-	Unknown	-	-
Turkey*	Unknown	-	-	Unknown	-	-	Unknown	-	-	Unknown	-	-

* Mediterranean population *C. d. diomedea*
\+ Atlantic population *C. d. borealis*

1 - Isenmann and Moali 2000; 2 - Budinski *et al.* 2010; 3- Croatian Ornithological Society and Nature park Lastovo Archipelago, Unpublished project results; 4 - Cadiou *et al.* 2004; 5 - Hellenic Ornithological Society 2009; 6 - Hellenic Ornithological Society, unpublished data; 7 - Bacetti *et al.* 2009; 8 - Brichetti and Fricasso 2003; 9 - Sultana *et al.* 2011; 10 - J. J. Borg pers. comm.; 11 - Monteiro *et al.* 1996; 12 - BirdLife International 2004; 13 - Bried, J., Crochet, P.-A., Didner E. and Pedro P. unpubl. data; 14 - Catry *et al.* 2010; 15 - Granadeiro *et al.* 2006; 16 - Oliveira and Menezes 2004; 17 - Geraldes 2000; 18 - Lecoq *et al.* 2010; 19 - Lecoq 2010; 20 - Aguilar 1991; 21 - Carboneras 2003; 22 - Arcos *et al.* 2009; 23 - Delgado *et al.* 1987; 24 - Martin and Lorenzo, 2001; 25 - Defos du Rau/ Initiative PIM *et al.* in prep. 2010; 26 - J. P. Tavares pers. comm.; 27 - Cadiou *et al.* 2011; 28 - Technological Educational Institution of the Ionian Islands, unpublished data; 29 – Baccetti *et al.* 2008; 30 - Borg and Mallia 1995; 31 - Borg & Sultana 1990-91; 32 - Borg and Sultana 2002; 33 - Sultana and Borg 2006; 34 - UNEP - MAP - RAC/SPA 2006; 35 - Fontaine *et al.* 2011; 36 - J. Bried, P.-A. Crochet, E. Didner and P. Pedro unpubl. data; 37 – Lecoq

2003; 38 - Lecoq 2005; 39 - Araujo & Luis 1982; 40 - Teixeira 1983; 41 – I. Ramirez pers. comm.; 42 - Belda and Sanchez 2001; 43 - Conselleria de Medi Ambient-Balearic Islands, unpublished; 44 - Sanz-Aguilar *et al.* 2011; 45 - Igual *et al.* 2009; 46 - J. M. Arcos pers. comm.; 47 - Rodríguez *et al.* 2011.

Conservation and Legal Status

The Global IUCN Red List Category of Cory's shearwater is 'Least Concern' because the species has an extremely large range, and so does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km^2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern (BirdLife International, 2011)

The species is included in Annex I of the European Union Directive on the conservation of wild birds (79/409/EEC/1979) and in Annex II (strictly protected species) of the Convention on the Conservation of European Wildlife and Natural Habitats (or Bern Convention). In a 2010 review of all the members of the order Procellariiformes Cory's shearwater was selected as a potential candidate for inclusion within the Agreement on the Conservation of Albatrosses (ACAP) by the Fifth Meeting of the ACAP Advisory Committee (Cooper 2010).

Threats

Overall, breeding populations of Cory's shearwater appear to be fluctuating, with the Mediterranean population possibly experiencing moderate declines. The main threats to both *C. d. diomedea* and *C. d. borealis* are from invasive, non-native predators (predominantly black rats *Rattus rattus* [Igual *et al.* 2006; Baccetti *et al.* 2009; Capizzi *et al.* 2010; J. Bried pers. comm.] and domestic and feral cats *Felis catus* in the Azores [Henriques 2010; J. Bried pers. comm.]) and mortality from fishery bycatch (Igual *et al.* 2009; García-Barcelona et al. 2010a; Laneri *et al.* 2010). High and increasing levels of light pollution and disturbance to colonies resulting from tourist and residential development are affecting the species in several countries (Monteiro *et al.* 1996; Baccetti *et al.* 2005; Raine *et al.* 2007; Rodríguez and Rodríguez 2009; Rodríguez *et al.* 2011; Fontaine *et al.* 2011). As well as causing mortality from bycatch, fisheries also cause depletion of food resources for the species, and competition with fisheries is particularly high in Portugal and Greece (I. Ramirez pers. comm.; J. Fric pers. comm.). Oil spills represent a significant potential threat to the species, should an incident occur (N. Baccetti pers. comm.; J. Fric pers. comm.). The construction and operation of wind farms is predicted to adversely affect some colonies of *C. d. diomedea* in the future (N. Baccetti pers. comm.; J. Fric pers. comm.; C. Peron pers. comm.). Less prominent threats to some populations include intensive poaching of chicks in specific colonies in the Canary Islands (Lopez-Darias *et al.* 2011) and on Santa Maria Island, Azores (Fontaine *et al.* 2011), direct persecution/ vandalism at colonies (J. Bried pers.

comm.), geological events such as landslides which degrade suitable habitat and reduce availability of breeding sites (Monteiro *et al*. 2011; Fontaine *et al*. 2011), habitat degradation by non-native mammals (e.g. over-grazing by rabbits: *Oryctolagus cuniculus*; Zino *et al.* 2008). The threats affecting the species, their corresponding threat status scores, and the countries affected are listed in Appendix 1. Threat status scores for each country affected are listed in Appendix 2.

INTRODUCED SPECIES

Alien species are now recognised as the major threat to island biodiversity worldwide (Whittaker and Fernandez-Palacios 2007) with numerous documented extirpations and extinctions of mammals, birds and reptiles attributed to invasive, introduced species (Courchamp *et al.* 2003; Donlan and Wilcox 2008; Harris 2009). Island species, including seabirds, often lack effective defences against non-native predators, and the slow reproductive rate and low productivity of many seabirds makes them particularly susceptible to this threat (Moors and Atkinson 1984). In long-lived species such as shearwaters, the impact of introduced predators is most severe when both adults and eggs are affected by predation (Warham 1990; Cuthbert *et al.* 2001). In addition to predation, other introduced mammals may adversely affect seabird populations through habitat degradation (e.g. over-grazing, destruction of nests; Monteiro *et al.* 1996). Recent studies highlight the pressures imposed on breeding populations of Cory's shearwaters by several introduced mammals (rats, cats, mice and rabbits; Rannisi *et al.* 2008; Zino *et al.* 2008; Baccetti *et al.* 2009; Henriques 2010) and colonies regularly show marked increases in breeding success during mammal control programmes (e.g. Igual *et al.* 2006; Zino *et al.* 2008; Pascal *et al.* 2008).

Expert opinion identified predation by invasive species as a high threat to the large populations of Cory's shearwaters (*C. d. borealis*) in the Azores and Canary Islands (J. Bried and M. Lopez-Darias pers. comm.), and a moderate-high threat (perhaps increasing) for Mediterranean populations (*C. d. diomedea*) in Italy, Greece, Malta, Croatia and Balearic Islands (M. Gustin pers. comm.; J. Fric pers. comm.; J. Borg pers. comm.; I. Budinksi pers. comm.; M. Grive pers. comm.). Predation by invasive species is also considered a threat, although not quantified, in France (P. Yesou pers. comm.). The observed population decline of the species in Italy has been mainly attributed to alien predators, especially rats (Sultana and Borg, 2006a,b), which can heavily limit reproductive success by predation upon chicks and eggs (e.g. Thibault, 1995; Penloup *et al.* 1997; Martin *et al.* 2000; Igual *et al.* 2006; Baccetti *et al.* 2009, but see also Ruffino *et al.* 2008; reviews in Towns *et al.* 2006; Jones *et al.* 2008; Ruffino *et al.* 2009).

PREDATION BY RATS

Black rats (*Rattus rattus*) are by far the most widespread species, and occur across most of the Atlantic and Mediterranean islands that support Cory's shearwaters (Monteiro *et al.* 1996; Baccetti *et al.* 2009; Ruffino *et al.* 2009).

Evidence for the impacts of predation on Cory's shearwater by black rats comes directly from assessments of nest contents and indirectly from predator removal studies. The former approach indicates that 59% of reproductive output may be lost to predation by rats (Rannisi *et al.* 2008), which is a relatively low impact, likely due to the large size of the island (e.g. a breeding success of 70% was recorded on the 750ha rat-inhabited Ponza island in 2008 [F. Corbi and F. Pinos, unpubl. data]). The latter approach shows that reproductive success strongly tracks rat control efforts, particularly in more accessible nesting locations, and suggests that rats are the main cause of breeding failure in at least some populations (Thibault 1995; Igual *et al.* 2006; Pascal *et al*. 2008; Baccetti *et al.* 2009). For example on rat inhabited La Scola Island, Italy, breeding success is zero (Perfetti *et al.* 2001; Sposimo and Baccetti 2008); and on Zannone, Italy, breeding success was zero in 2003 prior to rat eradication efforts, increasing to 100% following rat eradication in 2004 (Corbi *et al.* 2005; Corbi and Pinos unpubl. data). The effects of predation by rats are believed to be most severe on smaller islands, where constantly high black rat densities and predation on chicks depresses colony numbers (Thibault 1995; Martin *et al.* 2000; Baccetti *et al.* 2009). Equally, however, rats have co-existed with Cory's shearwaters on several Mediterranean islands for 2000 years, suggesting that some populations of *C. d. diomedea* on larger islands and archipelagos may have reached an equilibrium which would be stable (albeit perhaps at reduced shearwater abundances) in the absence of additional threats (Martin *et al.* 2000; Ruffino *et al.* 2009 – but see final page of the discussion in Baccetti *et al.* 2009 for a tentative explanation of a paradox). There is also evidence that historical predation pressure from rats may have altered the distribution of colonies (Monteiro *et al.* 1996; Fontaine *et al.* 2011).

The long-term population dynamics and interactions between Cory's shearwater and introduced rats are complex, but predation by rats is judged to be a high and perhaps increasing threat to most of the largest populations of *C.d. diomedea* (Balearic Islands, Italy, Greece, Malta, France and Croatia [Borg *et al.* 1998; Igual *et al.* 2006; Pascal *et al.* 2008; Rannisi *et al.* 2008; Baccetti *et al.* 2009; Capizzi *et al.* 2010; J. Fric pers. comm.; M. M. Grivé pers. comm.; C. Peron pers. comm.]). Although there have been fewer recent studies examining the impacts of rats on *C. d. borealis*, current opinion is that black rats also represent a high threat to the majority of the population (Azores, Madeira, Berlengas and Canary Islands [Monteiro *et al.* 1996; Fontaine *et al.* 2011; J. Bried pers comm.; M. Lopez-Darias pers. comm.; I. Ramirez pers. comm.;]). Only a few populations are not currently thought to suffer substantial reductions in breeding success from predation by black rats since they occur in locations where rats are not present. These include populations on islets in the Chinijo Archipelago, off northern Lanzarote (A. Rodríguez pers. comm.), and those in the Selvagens and Desertas Islands (D. Menezes pers. comm.). It should be noted that there are an increasing number of islands where rats have been eradicated, which have to be taken into consideration when calculating the fraction of the population that is subject to rat impact (see Capizzi *et al.* 2010).

INCIDENTAL FISHING BY-CATCH

Mortality in long-lines and fishing nets is one of the main causes of global declines in many seabird species with an estimated 160,000-320,000 birds killed annually (Gilman 2001; Cooper *et al.* 2003; Anderson *et al.* 2011). Most of the individuals affected are Procellariiformes, which are attracted by baits and become hooked on the lines, resulting in very high mortality rates from drowning (88-100%; Laneri *et al.* 2010). Cory's shearwaters are one of the most frequently represented seabirds in by-catch in the Mediterranean (Valeiras and Caminas 2003; García-Barcelona et al. 2010a; Laneri *et al.* 2010), with estimates of the numbers of individuals killed annually by Spanish fleets ranging from 200 (García-Barcelona et al. 2010a) to 467-1867 (estimated 4-6% of the local breeding population; Belda and Sanchez 2001). There have been fewer assessments of the impacts of long-line fisheries of other nations on Cory's shearwater, but results from a questionnaire suggest an annual by-catch of up to 1220 birds by Maltese fleets (8.5-10% of the breeding population; Dimech *et al.* unpubl.), although the authors emphasise that this is likely to represent an over-estimate skewed by high by-catch in a small number of vessels.

Adult survival is key to population viability in long-lived species such as Cory's shearwaters, hence the loss of even a relatively small percentage of breeding adults to by-catch can cause steep population declines (Igual *et al.* 2009) and is predicted to seriously threaten the Mediterranean subspecies in the near future (Cooper *et al.* 2003). Indeed, adult mortality in long-lines is already judged to have had a severe impact on smaller colonies such as those in the Columbretes Islands (Belda and Sanchez 2001) and demographic models suggest it has a larger effect than predation by rats on the population viability of *C. d. diomedea* in the Chafarinas Islands (Igual *et al.* 2009).

Impacts from local fisheries have been less well studied for Atlantic populations of Cory's shearwater, but are thought to be low in the Azores and Canary Islands (Cooper *et al.* 2003; Fontaine *et al.* 2011), although some populations in Madeira may be declining as a result of by-catch (D. Menezes pers. comm.). There is very limited data on by-catch in migrating and non-breeding areas and this is not currently judged an important threat (González-Solís *et al.* 2007), although Cory's shearwaters have been found killed by Brazilian vessels as fishermen hit shearwaters that come too close to the fishing boats with poles, killing some of them (Bugoni *et al.* 2008).

Fishing by-catch is viewed as a moderate-high threat to Cory's shearwater throughout the Mediterranean (Cooper *et al.* 2003; J. Fric pers. comm.; M. Gustin pers. comm.; M. McMinn Grivé pers. comm.; J. J. Borg pers. comm.; J. Bried pers. comm.; M. Lopez Darias pers. comm.; R. Rodríguez Martín pers. comm.; P. Geraldes pers. comm.) and as particularly serious in Spain (J. Manuel Arcos and D. Macias Lopez pers. comm.) and Croatia (I. Budinski

pers. comm.). It is regarded as a less serious threat to *C. d. borealis*, although populations in Madeira Island may be undergoing a slow decline as a result (D. Menezes pers. comm.), and there is a lack of quantitative data for the impacts of by-catch on this subspecies.

Small-scale fishing bycatch in particular is a threat to the species in Croatia as well as in Madeira, Italy, Greece and the Azores (Belda and Sánchez 2001; Cooper *et al*. 2003; Sánchez and Belda 2003; Dunn 2007; Arcos *et al*. 2008; ICES 2008; Magalhães *et al*. 2008; Igual *et al*. 2009; Laneri *et al*. 2010; García-Barcelona *et al*. 2010b; Fontaine *et al*. 2011; D. Menezes pers. comm.), whereas large-scale fishing is having more of an effect on the species in the Balearics, Malta and France (J. J. Borg pers. comm.; M. McMinn Grivé pers. comm.). Populations in Mediterranean Spain are affected by both large- and smale-scale fishing bycatch (Valeiras and Camiñas 2003; García-Barcelona *et al*. 2010a; b; Báez *et al*. 2011).

OTHER INTRODUCED PREDATORS

Cory's shearwaters may be affected by predation pressure from other introduced species, particularly feral cats *Felis catus* in the Azores, Italy and Malta; and house mice *Mus musculus*; as well dogs and ferrets (Nogales *et al.* 1988; Monteiro *et al.* 1996; Borg *et al.* 1998; Zino *et al.* 2008; Henriques 2010). There have been few studies on the impacts of these species on Cory's shearwater, but Nogales *et al.* (1988) found that *C. d. borealis* represented a minor component of feral cat diet in the Canary Islands (estimated 3.6% of consumed biomass) and more recent research suggests that eradication of house mice contributes to significantly greater breeding success of *C. d. borealis* at Selvagem Grande (Zino *et al.* 2008) although it should be noted that the authors mention that they cannot be certain whether higher breeding success is due to house mice or rabbit eradication, or both. Predation pressure from cats, dogs and ferrets interacts with that imposed by rats and is also thought to contribute to a slow deterioration in populations of *C. d. diomedea* in Malta (J. Borg pers. comm.). Predation by American Mink *Neovison vison*, should this species arrive, is a potential threat to the species in Sardinia, where islands holding the main colonies are all very close to land (N. Baccetti pers. comm.).

LIGHT AND NOISE POLLUTION

Light pollution adversely affects seabirds worldwide and has become an increasingly serious problem as coastal areas come under greater pressure from tourist and residential developments (Reed *et al.* 1985; Le Corre *et al.* 2002; Fontaine *et al.* 2011). Artificial lights from a wide range of sources (e.g. street lights, airports, harbours) may disorientate nocturnal seabirds which rely on visual cues for navigation, resulting in grounding through exhaustion (Raine *et al.* 2007; Rodríguez and Rodríguez 2009). Light pollution is known to affect at least 21 species of Procellariformes (Reed *et al.* 1985) and grounding frequently leads to death from injury, starvation or predation (Rodríguez and Rodríguez 2009).

In Cory's shearwater, fledglings are particularly susceptible to light pollution, with over 1,000 birds grounded annually in Tenerife, representing an estimated 45-60% of all fledglings on the island (Rodríguez and Rodríguez 2009). A similar situation occurs in Gran Canaria (P. Calabuig pers. comm.). Similarly, over 5,000 fledglings were reported grounded in 2008 in the Azores, and similar numbers are reached in other years, including 15-20% of the populations of fledglings on some islands (Fontaine *et al.* 2011; Rodrigues *et al.* 2011). However, overall light-induced mortality in the Azores is colony specific (Rodrigues *et al.* 2011) with an estimated 6.5-6.6% of fledglings affected across the archipelago, declining to 0.5-1.2% when effective rescue campaigns are in place (Fontaine *et al.* 2011). The effects of light pollution on *C. d. diomedea* have been less well studied (see Baccetti *et al.* 2005), but losses of as much as 12% of fledged totals have been reported due to light pollution, considerably improving following replacement of bulbs (Baccetti *et al.* 2008), and there is also evidence that some breeding areas in Malta have been entirely vacated following the installation of nearby lighting (Raine *et al.* 2007).

Light pollution is increasing with greater urbanisation and tourist development throughout much of the breeding range of Cory's shearwater (for example Rodrigues *et al.* 2011; Rodríguez *et al.* 2011), and is identified as a high and increasing threat to populations of *C. d. borealis* in the Azores (Monteiro et al. 1996; Fontaine et al. 2011; J. Bried pers comm.) and the Canary Islands (particularly the major inhabited islands [Rodríguez and Rodríguez 2009; Rodríguez and Rodríguez in review; A. Rodríguez pers. comm.]). The combination of light and noise pollution is also viewed as a high and increasing threat to *C. d. diomedea* in Malta (J. Borg pers. comm.). Light pollution has been identified as a medium to low threat in Italy (Baccetti *et al.* 2005) and Madeira (D. Menezes pers. comm.).

OTHER DISTURBANCE FROM TOURISM AND URBAN DEVELOPMENT

Some colonies of Cory's shearwater may be directly affected by disturbance resulting from increasing levels of tourism and urban development. Building encroachment into breeding areas, collisions with vehicles, and vandalism and trampling of nests have all been documented to affect Cory's shearwater (Monteiro *et al.* 1996; Fontaine *et al.* 2011; J. Borg pers. comm.). In addition to light and noise pollution, the general disturbance associated with commercial and residential developments is viewed as a high and increasing threat to *C. d. borealis* on the Canary Islands (M. Lopez-Darias pers. comm.) and a moderate threat to some populations of *C. d. diomedea* in Spain and Malta (Borg and Cachia-Zammit 1998; Carboneras 2004; J. Arcos pers. comm.; J. Borg pers. comm.).

FISHERIES INTERACTIONS

In addition to direct mortality from long-lines, intensive fishing pressure can cause substantial fluctuations in the abundance of pelagic fish which many seabirds depend upon (Furness 2003; Arcos *et al.* 2008). Competition for resources could therefore affect populations of some shearwater species, particularly in heavily fished areas of the Mediterranean (Arcos *et al.* 2008). Although any reduction in food availability may be partly compensated for by the availability of discards, the long-term sustainability of this resource is questionable (Montevecchi 2002; Arcos *et al.* 2008). Few studies have specifically investigated the impacts of competition with fisheries on Cory's shearwater populations, but reports from fishermen on significant reduction of fish stocks in the Aegean Sea, it is identified as a moderate threat affecting most populations in Greece (J. Fric pers. comm.) and the Berlengas (I. Ramirez pers. comm.).

ILLEGAL HUNTING

Human exploitation of island birds is a major cause of historical population declines in many species (Steadman 1995; Samways *et al.* 2010). Seabirds have been particularly badly affected by this threat, because they often have large, ground-nesting colonies which are easily accessible to hunters (Spennemann 1998; Granadeiro *et al.* 2006). Although hunting of Cory's shearwaters is now illegal, mortality of chicks from poaching is regarded as a serious threat to specific colonies on Fuerteventura and Isla de Lobos, with almost 60% of fledgling loss attributed to poaching on Fuerteventura (Lopez-Darias *et al.* 2011). Data on the impacts of poaching are very limited for most other populations of Cory's shearwater (Lopez-Darias *et al.* 2011) but an estimated 500-1500 nestlings are taken annually on Santa Maria island in the Azores (Fontaine *et al.* 2011). However, although intensive harvesting has also occurred on other islands of the Azores (Monteiro *et al.* 1996; Fontaine *et al.* 2011), and at Selvagem Grande (Granadeiro *et al.* 2006), the population from Selvagem Grande is thought to be recovering (Granadeiro *et al.* 2006; Fontaine *et al.* 2011) and this threat is now regarded as low and declining in the region (J. Bried pers. comm.). On Selvagem Grande, retaliation killings have also been reported in response to the establishment of Selvagem Grande as Nature Reserve. Similarly, legislation and surveillance are helping to curb poaching in Malta (Raine *et al.* 2009) and a strong recovery potential following hunting is suspected in the Maltese population (J. Sultana pers. comm.; J. J. Borg pers. comm.). Illegal hunting is not judged to be a threat to Mediterranean populations.

OIL SPILLS, POLLUTION AND CONTAMINANTS

Intense maritime traffic in the Mediterranean increases the risk of oil spills (e.g. a few small-scale oil spills occurred off Tarragona in November-January 2010-11; Arcos, J. M. pers. comm.).

Previous cases of oil spills in Italy have been reported to affect <10% of other shearwater populations, and so this has been selected as a low threat in this country (N. Baccetti pers. comm.). However, it has the potential to affect a larger proportion of the population in the

future and it which case would be a much higher threat. The impact of oil spills in Greece has been assessed as a high threat as it may affect a large proportion (e.g. 90%) of the population should a serious oil spill occur (J. Fric pers. comm.). It should be noted that the threat assessment for Italy has been based on previous evidence, whereas the assessment for Greece has been based on a hypothetical severe situation.

The leaking of oil into the sea following the washing of tanks or from oil wrecks is also a source of pollution that may affect the species (N. Baccetti pers. comm.). The dumping of ballast water is also a threat to the species as it contaminates the water, primarily by spreading alien aquatic organisms. Organochlorine contaminants (PCBs and DDTs) have been found in virtually all populations of Cory's shearwaters, the levels being greater in birds from the Mediterranean than in those from the Atlantic colonies, but possible adverse effects are unknown (Roscales *et al*. 2010).

INSHORE, ONSHORE AND OFFSHORE WIND FARMS

The demand for renewable energy has led to large numbers of wind farms being built, with many more intended (Drewett and Langston 2006). Unless carefully planned, wind farms may result in seabird mortality directly through collisions with rotors and the associated structures, as well as indirectly through habitat degradation (e,g, noise and vibrations, traffic during construction and maintenance; Drewett and Langston 2006). Wind farms are not currently viewed as a threat to Cory's shearwater, but may impact upon some populations in the future, particularly in Greece (J. Fric pers. comm.).

OTHER INTRODUCED MAMMALS

Although not specifically identified as a threat in this assessment, introduced rabbits can indirectly affect seabird populations through destruction of nests and soil erosion and shifts in vegetation structure caused by over-grazing (Monteiro *et al.* 1996; Bried *et al.* 2009). An eradication programme on Selvagem Grande suggests that breeding success in *C. d. borealis* may be increased by 22.6-47.2% as a result of the combined removal of rabbits and house mice (Zino *et al.* 2008). However, it should be noted that burrows excavated by rabbits are also occupied by the shearwaters although the effect of this on the population is still to be assessed.

OTHER THREATS

Geological events, such as landslides, are identified as a low-level, region-specific threat to a few Cory's shearwater populations in Madeira and the Azores (D. Menezes pers. comm.; J. Bried pers. comm.). Potential larger-scale anthropogenic impacts such as pollution and climate change were not considered a significant threat to breeding populations of Cory's shearwater. However, there is evidence that adult survival across several Cory's shearwater

populations is affected by extreme climatic events during the non-breeding period, suggesting that predicted increases in storm frequency associated with climate change will negatively affect the species (Jenouvrier *et al.* 2009; Boano *et al.* 2010).

Threat reduction measures should take into account that the severity of different threats is site-specific. Furthermore, the relative impacts of the three key threats identified above (predation by rats, light pollution and fishing by-catch) are highly dependent on the relative importance of adult survival versus reproductive success, emphasising the need to understand not just the direct mortality caused by a particular threat, but its implications for long-term population viability.

EU funded projects

Thirteen LIFE[38] projects which benefit Cory's shearwater have been implemented in Spain (2), France (2), Portugal (4), Malta (2), Greece (1) and Italy (3). Details for all these projects can be obtained from the LIFE project database at: http://ec.europa.eu/environment/life/project/Projects/index.cfm

In addition, the FAME (Future of the Atlantic Marine Environment) project, financed by the European Commission through the European Regional Development Fund (ERDF), with a total of 158 million Euros, is tracking the movements of seabirds (including Cory's shearwater) along the Atlantic coastlines of the UK, Ireland, Spain and Portugal. More information on the FAME project can be found at http://www.fameproject.eu/en/

The SIMBIOTIC project 2011-2013 is an environmental restoration project aiming at enhancing the ecological connectivity of the SE Sicily-Gozo transboundary migratory route, financed by the Italia-Malta Territorial Cooperation Programme 2007 – 2013.

Stakeholders

Important stakeholders that have an interest in the species have been identified through literature review and consultation with species experts. These stakeholders fall roughly into

[38]LIFE Nature Project codes: LIFE03 NAT/F/000102; LIFE03 NAT/F/000105; LIFE04 NAT/P/000213; LIFE07 NAT/P/000649; LIFE10 NAT/MT/000090; LIFE07 NAT/GR/000285; LIFE97 NAT/IT/004153

13 categories: National governments; regional and local governments; National Park/ Protected Area managers; BirdLife partners; Other NGOs; Research institutes, groups and individuals; Industrial fisheries; Local (artisanal) fishermen; Tourist businesses (tourism companies, hoteliers, fish restaurants, tourists); Wind energy community; Island inhabitants; and independent companies. A full list of identified stakeholders and the recommended contact approach is available in Appendix 3.

In order to ensure stakeholders are included in the population assessment process, it is important to recognise and consider the diversity in stakeholder groups and interests, and engage relevant stakeholders in appropriate parts of the process.

There are three main stages in this process for which stakeholders should be involved: initial data collection; attendance at species workshops; and review and revision of the population assessment documents. It is important to identify which stakeholders are important to each step of the process and to engage them accordingly. To do so, social, cultural and environmental factors need to be considered. Of particular importance at all stages is language. The most obvious issue with language is the simple difficulty in understanding the discussion. In addition, language has a strong influence in increasing or reducing barriers. Definitions of concepts are often set linguistically, affecting how issues are understood and approached. Therefore in all stages of the process, it should be ensured that the language of stakeholders is addressed and documents and workshops are translated accurately. Cultural differences also need to be considered, including values, beliefs, interests and level of understanding. As such, it is important to approach stakeholders in the most appropriate way, whether through local associations (e.g. hunting associations, fishing associations, wind energy associations, etc), in-country BirdLife partners, local governments, local experts, etc.

Conservation Actions Information

Conservation Actions Proposed

2 As a precaution, control or if possible eradicate feral cats and rats at breeding colonies, according to a preliminary threat assessment.
3 Encourage policymakers to implement and enforce measures that reduce accidental by-catch of Cory's shearwaters and other seabirds in commercial fishing operations in the Mediterranean.
4 Identify and implement measures to reduce/ mitigate the effects of light pollution on the species.
5 Ensure legislation on ballasting is effectively enforced.

Research and monitoring needed

Research

6 Population size

6.1 Carry out population censuses at breeding colonies for which there is currently little reliable, up-to-date population size data, particularly those in the Canary Islands and Algeria – **High priority**

6.2 Conduct studies on Azorean breeding colonies to determine breeding population size – **High priority**

6.3 Conduct further studies on Zembra island, Tunisia to confirm the breeding population size – **Medium priority**

6.4 Conduct non-breeding/ migrating counts at bottleneck sites, e.g. at the strait of Gibraltar – **Medium priority**

6.5 Conduct breeding population censuses of the colony on NW Menorca to determine the number of breeding pairs –**Low priority**

6.6 Research suspected colonies, including Turkey – **Low priority**

Methodology

6.7 Development of (flexible) guidelines regarding censusing to answer questions on rafting vs. breeding pairs – what is the correlation, if any? Are rafts a good proxy for breeding pairs? – **High priority**

6.8 Homogenisation of methodologies, where possible (e.g. time of year, time of day, sea conditions, weather, etc.) – **High priority**

6.9 Promote simultaneous observation programmes – **Medium/ High priority**

6.10 Determine total population size (including non-breeders), rather than just breeding population size – **Medium/ High priority**

6.11 Studies on demographic parameters (particularly in the Azores, Tunisia and Canary Island) to determine non-breeding population proportion – **Medium priority**

Future work

6.12 List of all occupied colonies for each island – **Low priority**

7 Threats

7.1 Research the impact of introduced predators across breeding range, particularly the long-term population dynamics and interactions between Cory's shearwater and introduced rats – **High priority**

7.2 Quantify extent of mortality from accidental by-catch – **High priority**

7.3 Research other threats to the species including new and potential threats such as oil spills, bunkering, windfarms, etc. **Medium/ Low priority**

Monitoring

8 Population trends

8.1 Conduct monitoring at key breeding sites, particularly the Azores (trend to be provided and clarified by Maria Magalhães), Tunisia and Canary Islands, to determine population trends – **High priority**

8.2 Monitor population trends on Linosa Island, Sicily – **High/ Medium priority**

9 Threats

9.1 Monitor additional threats including light pollution (particularly on *C. d. diomedea*), habitat loss, competition with fisheries, oil pollution, egg collection and the development of inshore, onshore and offshore wind farms – **Medium priority**

9.2 Monitor the population and threats at Zembra Island – the largest Cory's shearwater colony – **Medium priority**

9.3 Continue monitoring the population and threats at Selvagem Grande – **Medium priority**

Contributors:

Nicola Baccetti; John J. Borg (BirdLife Malta); Joe Sultana; Jose Manuel Arcos (SEO/ BirdLife); Jose Pedro Tavares (RSPB); Ivan Budinski (Association for Biological Research – BIOM); Jakob Fric (Hellenic Ornithological Society); Robert Crnković (Hrvatsko ornitološko društvo Croatian Ornithological Society); Ivan Ramirez (SPEA); Danae Portolou (Hellenic Ornithological Society); Pierre Yésou; Mathieu Thevenet (PIM Initiative); Maria Magalhães (Departamento de Oceanografia e Pescas-Centro do IMAR da Universidade dos Açores/ Department of Oceanography and Fisheries-IMAR Center of the University of the Azores); Dilek Sahin (Istanbul University, Institute of Life Science); Ortaç Onmuş (Department of Biology, Ege University); Joël Bried (Departamento de Oceanografia e Pescas-Centro do IMAR da Universidade dos Açores/ Department of Oceanography and Fisheries-IMAR Center of the University of the Azores); Dília Menezes (Serviço do Parque Natural da Madeira/ Madeira Natural Park Service); Giacomo Dell'omo; Airam Rodríguez (Estación Biológica de Doñana CSIC); Beneharo Rodríguez (SEO/BirdLife); Daniel Oro; Leandro Bugoni (Universidade Federal do Rio Grande - FURG); Marco Gustin (LIPU - Italian League for the Protection of Birds); Ignacio Munilla (University Of Santiago De Compostela); Miguel McMinn Grive (Skua Gabinete de Estudios Ambientales SLP - Environmental Consultancy); Bruno Massa; Jordi Muntaner Yangüela (Govern Illes Balears/ Balearic Islands Government); David Macias Lopez (Instituto Español de Oceanografia/Spanish Institute of Oceanography); Maria Virginia Petry (Universidade do Vale do Rio dos Sinos / University of the Sinos River Valley); Pedro Luís Geraldes (SPEA – BirdLife); Paulo Oliveira (SPNM); Pedro Sepúlveda (SPNM); Marta Lopez Darias (Consejo Superior de Investigaciones Científicas/ Spanish National Research Council); Clara Peron (Centre d'ecologie fonctionelle et evolutive - CEFE CNRS); Giorgia Gaibani (LIPU); Krešimir Mikulić (Association for Biological Research); Antica Čulina (Edward Grey Institute, Department of Zoology, University of Oxford); Luka Jurinović (Croatian Veterinary Institute); Georgios Karris (Technological Educational Institution of the Ionian Islands); Thanos Kastritis (Hellenic Ornithological Society); Angelos Evangelidis (Hellenic Ornithological Society); Victoria Saravia Mullin (Hellenic Ornithological Society); Kostas Gaganis (Hellenic Ornithological Society); Jacopo Cecere (ISPRA); Michael Sammut (AquiLarus); Paolo Becciu; Antonio Fasciolo; Gonzalo M. Arroyo (UCA); Ana Rodríguez Molina; Salvador García Barcelona (Spanish Institute of Oceanography); Jose Carlos Baez (Spanish Institute of Oceanography); Jose Maria Ortiz de Urbina (Spanish Institute of Oceanography); Marta Lopez-Darias (CSIC); Manolo Igual; Blanca Sarzo; David García; Jacob González-Solís (University of Barcelona); Elodie Debize; Paul Woodcock; Miguel Lecoq (Eco-Ethology Research Unit, ISPA-Instituto Universitário).

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Lessons learned from the population assessment process for Cory's and Yelkouan shearwater.

Mia Derhé, BirdLife International. Dec 2011

1. **Has the process of producing a population status assessment been successful in improving the overall knowledge and understanding of the status and conservation needs of the species concerned?**

The process of producing a population status assessment has been very successful in improving the overall knowledge and understating of the status and conservation needs of Cory's and Yelkouan shearwater. All European range countries were well represented for each species, with an expert from each country involved in the process. Although there was difficulty in involving experts from North Africa, data was available for all the key countries, and there was active participation from experts working in Tunisia (the key North African country). All participants were very active in the compilation of data and the review of the quality and reliability of it.

As well as being successful in improving the knowledge of the species, the process (particularly the workshops) was very useful in provoking discussion amongst experts and in reaching agreement on the species' status. In addition, the interactive, collaborative process enabled the contributors to frame their knowledge within the context of the global situation and promoted ideas-sharing between experts.

2. **What were the main obstacles to have such and improved knowledge? How were these obstacles addressed by the workshops and the process overall?**

The population assessment was very successful in gathering data; however the main obstacle to the assessment is a lack of available information on the species, due to a lack of regular research and monitoring at some key sites (e.g. Tunisia for Cory's shearwater and Turkey for Yelkouan shearwater).

In addition to a lack of up-to-date, reliable data for some countries, data compatibility is also an issue, as well as the objective evaluation of the quality and reliability of data. Differences in methodologies (and differences in opinion on the reliability of such methodologies) including timing, number of visits, protocol used and sampling units, etc. can pose a problem when collating regional and national data into a global assessment. To overcome this, information was gathered on the method, timing and duration of data collection, as well as an objective weighting system of data quality in order to identify where possible sources of error and inaccuracy may lie. The importance of standardising survey methodology and reporting of data collection protocols was discussed at the workshops and the development of censusing guidelines and homogenisation of methodologies was recommended as a priority action for the two species.

The main logistical obstacles to gaining an improved knowledge of the two species were a lack of participation from the majority of North African countries and difficulties in gaining involvement of key stakeholders (e.g. fishermen and fishing industry, wind energy associations, hunters, tourist companies, etc.). The issue of stakeholder involvement is a difficult one, with the main obstacle being establishing contact with the various stakeholder groups at the appropriate level. The contact details of stakeholder groups were determined early on in the assessment process, through online searches, with the assistance of BirdLife partners and through recommendations of species experts. Where contact details were available or where it was appropriate for experts or organisations to be responsible for stakeholder liaison, stakeholders were contacted and invited to provide intital information, attend the workshops (with possible funding) and provide their comments on the draft assessments. However, there was very little response from stakeholders. During the workshops, a session was dedicated to identifying relevant stakeholders, obtaining their contact details and assigning relevant stakeholder representatives (experts or organisations who have experience of working with particular stakeholder groups) where appropriate. Following the workshops, stakeholders were again contacted, and were sent the workshop report and invited to comment on the draft species assessments. Again there was very little response.

As well as a poor level of response from stakeholders, a key challenge was individual stakeholder identification and contact. Local conservation organisations, local, regional and national governments, Protected Area managers, research institutes, wind energy representatives and fishing associations were contacted directly, but the response was very low. Individual local stakeholders proved very difficult to contact (e.g. fishermen, goat breeders, island inhabitants, etc) and so participation from these groups in the assessment process was very limited. In order to improve the situation for future processes, it is recommended that planners should rely on NGOs, authorities and species experts that had already cultivated relationships with relevant stakeholders at both the local and national level. More realistically, local stakeholders should be included in the planning process using social science methodology and techniques. Additional time, effort and resources should be implemented in facilitating engagement of NGOs, partners and experts with stakeholders in order to maintain an open dialogue throughout such processes (e.g. local workshops in local languages to provide stakeholders with an open platform to voice their interests and knowledge prior to the main European-level workshops).

Determining a suitable location and time to bring together all the relevant experts to discuss the particularities of each species is often a problem when conducting such assessments. This was overcome by organising the workshop in Sardinia (a breeding location for both species) alongside the MEDMARAVIS Symposium[39], as the large majority of the species' experts were attending the Symposium. This also enabled additional experts who were attending MEDMARAVIS but were unaware

[39] The MEDMARAVIS Symposium is the 13th in a series of Pan-Mediterranean conferences on seabird ecology and conservation and the 8th symposium dedicated to seabird research throughout the Mediterranean and the wintering territories beyond. The 2011 Symposium focussed on updating research data, streamlining monitoring programmes and on progress achieved for coastal habitat conservation.

of the workshop to attend. However, participation from North African countries in the workshops was again largely lacking.

3. Which were the main contributors (participants, stakeholders, data providers) to improving the knowledge?

BirdLife partners proved to be very instrumental in providing data (particularly collating information into national responses), as well as facilitating contact with relevant experts. Many partners and experts were involved in the process from survey form completion, through workshop attendance, to reviewing of the final documents. Experts from Italy were heavily involved in the process and were most active in providing information, followed by all other European representatives (particularly Greece, Spain and Malta). Representatives from the Small Island Initiative (PIM) provided data on Tunisia, but representatives from Albania and Algeria did not participate in the process.

4. Were there differences in the attitudes towards the conservation of the species concerned by different stakeholders and how were they addressed?

There was general consensus on the conservation of the species amongst the contributors and everyone involved recognised the importance of incorporating the up-to-date, good quality information in the population assessments. Some contributors were more active than others and were more keen to be involved, particularly BirdLife partners and representatives from Italy, Greece, Spain and Malta. Some experts and non-BirdLife NGOs had some wrong ideas about the final aim and needed more detail to justify why we were carrying out the work. However, this was quickly overcome by presenting our work objectives at the MEDMARAVIS Symposium and by conducting the workshops, so that all attendees understood the aim of the assessment process. During the workshops there was a very good atmosphere of collaboration for both species.

5. Are there any remaining or unresolved disputes that must be addressed by the EC? Any diverging views need mentioning?

There are no remaining or unresolved disputes; however, issues may arise when engaging on a deeper level with other key stakeholders. One potential issue that was identified at the workshops was the new population assessment made by the Small Island Initiative (PIM) of the Cory's shearwater population at the Tunisian island of Zembra. Several participants expressed doubts on the methods used. This is unlikely to be an issue to be addressed by the EC, but it is something that the scientific community or Birdlife may need to address. This issue also highlights the importance of standardising survey methodology and reporting of data collection protocols.

6. Lessons learned from the process – what should be taken forward and implemented in future population assessments?

The main lesson learnt is the importance of engaging contributors in a transparent, collaborative process that is facilitated by workshops. The workshops were integral to the process as they provided a platform for open, mediated discussion leading to agreement of data, as well as ideas- and experience-sharing amongst participants. The workshops proved to be a very good vehicle for facilitating collaborations between experts from different countries dealing with similar issues (e.g. experts from Spain who conduct counts of other species at the Strait of Gibraltar planning collaboration with Turkish experts at the Bosporus).

By hosting the workshops alongside other relevant meetings (in this case the MEDMARAVIS Symposium), it enabled more experts to attend the workshops and expanded the audience of the work. For those who were unable to attend the workshops, there was the opportunity to provide initial information and then to comment on the prepared assessment both before and after the workshops. The review process was very effective at ensuring opinions were considered and all information had been included in the appropriate manner. The time dedicated to each species (1-day workshop per species) was deemed sufficient. The major obstacle in the process was the lack of representatives from North Africa or the Black Sea (for wintering populations). The workshop would have benefitted considerably from increased participation of key stakeholders to provide a comprehensive insight into particular interests and priortities and information such as bycatch rates, levels of enforcement in protected areas, collisions with wind turbines, numbers of grounded birds (e.g. due to lights), etc. Increased participation would also have enabled an open dialogue to reach a consensus on the staus of the two species, with stakeholders having an opportunity to pose any questions and discuss any doubts, whilst giving experts and partners the chance to provide the justification for their stance. Increased stakeholder participation would also have represented an important opportunity to develop relationships with stakeholders to improving engagement in the development of management strategies, such as the development of marine protected areas, strategic placement of wind turbines, implementation of bycatch-reduction measures, prevention of rat introductions to islands, water contamination-reduction measures, etc. However, the inclusion of such local stakeholders into the process should be based on realistic expectations about their interest to participate and their responsiveness to invitations to do so, their language skills and their physical location. It is therefore necessary to provide for suitable methodology for their involvement e.g. through social-science tools.

APPENDICES

Appendix 1 The threats affecting Yelkouan shearwater with corresponding threat status scores and the countries affected. Final threat status score is calculated by averaging the threat status score for each country.

Threat	*Threat level combined with no. countries affected*	*Threat status*	*Final threat status score*	*No. countries affected*	*Countries affected*	*Trend of threat*
Fishing bycatch (large- and small-scale)	6.7	High	5.3	8.0	Spain; Italy; Greece; Turkey; Malta; Cyprus; Bulgaria; France	Stable/ Increasing
Large-scale fishing bycatch	4.0	High	6.0	2.0	Bulgaria; France	Stable/ Increasing
Small-scale fishing bycatch	5.7	High	5.3	6.0	Spain; Italy; Greece; Turkey; Malta; Cyprus	Stable/ Increasing
Predation by rats	5.8	High	6.6	5.0	France; Italy; Malta; Greece; Croatia	Stable
Predation by cats	5.0	Very high	8.0	2.0	France; Spain	Stable
Tourism development	4.8	High	5.5	4.0	Bulgaria; Malta; Croatia; Spain	Increasing
Oil spills	4.9	Low	3.7	6.0	Greece; Spain; Turkey; Italy; Malta, Croatia	Stable
Competition with fisheries	4.7	High	6.3	3.0	Spain; Greece; Turkey	Increasing
Inshore, onshore and offshore windfarms	4.2	Medium	4.3	4.0	Italy; Spain; Malta; Greece	Increasing
Commercial and industrial development	4.0	High	7.0	1.0	Malta	Increasing
Light pollution	3.8	Medium	5.5	2.0	Malta; Italy	Increasing
Other - toxic algae blooms	3.5	Medium	5.0	2.0	Italy; Spain	Stable
Invasive species - American Mink	3.5	High	6.0	1.0	Italy	Unknown
Competition for nest sites with Cory's shearwater	3.2	Medium	3.3	3.0	Croatia; Malta; Italy	Unknown
Pollution and contaminants	3.0	Medium	5.0	1.0	Turkey	Unknown
Other - geological erosion	3.0	Medium	5.0	1.0	Malta	Unknown
Illegal hunting	0.5	Low	0.0	1.0	Malta	Stable

Appendix 2 The threats affecting Yelkouan shearwater by country, with corresponding threat status scores calculated by combining the severity, scale and timing scores of each threat.

Range state	*Threat*	*Final threat status score*	*Threat status*	*Parameter affected by threat*	*Trend of threat*	*References for threat*
Malta	Commercial and industrial development	7	High	Species disturbance	Increasing	Borg et al. 2010.
Croatia	Competition for nest sites with Cory's shearwater	5	Medium	Reduced reproductive success; Competition	Unknown	
Malta		5	Medium			
Italy		0	Low			
Spain	Competition with fisheries	7	High	Reduced reproductive success; Competition; Reduced food availability	Increasing	Arcos et al. 2008
Greece		6	High		Unknown	
Turkey		6	High		Unknown	
Malta	Illegal hunting	0	Low	Species mortality	Stable	Raine and Temuge. 2009; Raine and Temuge. 2010; Borg et al. 2010; Oppel et al. 2011.
Italy	Invasive species - American mink	6	High			
Bulgaria	Large-scale fishing bycatch	7	High	Species mortality	Stable	
France		5	Medium		Increasing	Bourgeois and Vidal 2008; Oppel et al. 2011.
Malta	Light pollution	6	High	Species disturbance; Species mortality	Increasing	
Italy		5	Medium		Increasing	
Greece	Oil spills	6	High	Species mortality; Reduced reproductive success; Foraging habitat lost/degradation	Unknown	
Spain		6	High		Stable	
Turkey		5	Medium		Unknown	
Croatia		5	Medium		Stable	
Italy		0	Low		Unknown	
Malta		0	Low		Stable	Borg et al. 2010; Oppel et al. 2011; Raine et al. 2009; Raine et al. 2011; Sultana et al. 1975; Sultana and Gauci 1982.
Malta	Other - geological erosion	5	Medium	habitat degradation/ loss; reduced breeding success	Unknown	

Range state	*Threat*	*Final threat status score*	*Threat status*	*Parameter affected by threat*	*Trend of threat*	*References for threat*
Italy	Other - toxic algae blooms	5	Medium	Species mortality		
Spain		5	Medium		Stable	Gutiérrez 2007
Turkey	Pollution and contaminants	5	Medium		Unknown	
France	Predation by cats	8	Very high	Species mortality	Stable	Bonnaud et al. 2009; Bonnaud et al. in review; Bourgeois and Vidal 2008; Ruffino et al. 2009; Vidal 1985
Spain		8	Very high		Unknown	
France	Predation by rats	8	Very high	Species mortality; Reduced reproductive success	Unknown	
Italy		7	High		Stable	Capizzi et al 2010
Malta		7	High		Decreasing	Borg et al. 2010
Greece		6	High		Stable	HOS unpublished data
Croatia		5	Medium		Increasing	
Spain	Small-scale fishing bycatch	8	Very high	Species mortality	Increasing	Besson 1973; ICES 2008; Louzao et al. in press; Arcos et al. 2008
Italy		7	High		Stable	none
Cyprus		6	High		Unknown	
Greece		6	High		Unknown	HOS; LIFE07 NAT/GR/000285 LIFE project/unpublished data.
Turkey		5	Medium		Stable	Expert opinion.
Malta		0	Low		Stable	Oppel et al. 2011; Borg et al. 2010; Raine et al. 2011; Raine et al. 2009; Sultana et al. 1975; Sultana and Gauci 1982
Bulgaria	Tourism development	7	High	Species disturbance; Habitat loss and degradation	Increasing	Expert opinion
Malta		6	High		Increasing	Oppel et al. 2011; Borg et al. 2010; Raine et al. 2011; Raine et al. 2009; Raine et al. 2007; Sultana et al. 1975; Sultana and Gauci 1982

Range state	*Threat*	*Final threat status score*	*Threat status*	*Parameter affected by threat*	*Trend of threat*	*References for threat*
Spain		6	High		Unknown	
Croatia		3	Low		Unknown	
Spain	Windfarms	5	Medium	Species mortality; Species disturbance; Loss and degradation of habits	Increasing	
Italy		4	Medium		Increasing	
Malta		4	Medium		Increasing	Raine et al. 2010
Greece		4	Medium		Unknown	

Appendix 3 List of identified stakeholders for Yelkouan shearwater

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Bulgaria	BirdLife Partner	BSPB	Minko Madjarov		
Bulgaria	Local fishermen	Local fishermen			
Bulgaria	National governments	Ministry of Environment and Water			
Bulgaria	Tourist businesses	Tourist companies			
Croatia	Local fishermen	Long-line fishermen catching demersal fish, mostly hake		via local governments	Particularly local fishermen who work at tourist restaurants
Croatia	National park/ PA managers	Lastovo Archipelago Nature Park	Gojko Antica		
Croatia	NGOs	Plavi svijet	Draško Holcer		
Croatia	NGOs	Association for Biological Research-BIOM	Ivan Budinski		
Croatia	Research institutes, groups and individuals	Croatian marine research centre.			Particularly for depletion of fish stocks
Croatia	Tourist businesses	fish restaurants			
European	Wind energy community	European wind energy association			http://www.ewea.org/
France	BirdLife Partner	LPO	Thierry Micol		
France	National governments	Conservatoire du Littoral et des Rivages Lacustres			
France	National park/ PA managers	Riou Archipelago Natural Reserve	Alain Mante		
France	National park/ PA managers	Frioul Islands Maritime Park	Patrick Vidal		
France	National park/ PA managers	Parc national de Port-Cros (PNPC)	P.Gillet		
France	National park/ PA managers	Port-Cros National Park	A. Bonneron; O. Laurent; S. Dromzée; H. Berger		
France	National park/ PA managers	Port-Cros National Park			

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
France	NGOs	Mediterranean Small Islands Initiative (PIM)	S.Renou M.Thévenet		
France	NGOs	France Alpes de Lumière, France			
France	Research institutes, groups and individuals	Centre d'Etude Biologique de Chizé (CNRS-CEBC)			
France	Research institutes, groups and individuals	Institut Méditerranéen d'Ecologie et de Paléoécologie (IMEP)			
France	Research institutes, groups and individuals	GISOM (French scientific seabird group)			
France	Research institutes, groups and individuals	CEFE (Centre d'Ecologie Fonctionelle & Evolutive)			
France	Research institutes, groups and individuals	Corsica Foundation			
France	Research institutes, groups and individuals		Karen Bourgeois		
Greece	BirdLife Partner	HOS	Jakob Fric		
Greece	Island inhabitants	Goat/ sheep stockbreeders		via ministry of environment; ministry of agriculture; and ministry of marine affairs	Difficult to contact
Greece	Local fishermen	Fishermen's Union for Southern Aegean	Demetres Zannes	HOS have links to fishing associations	
Greece	Local fishermen	Fishermen's Union for Northern Aegean		HOS have links to fishing associations	
Greece	National governments	Ministry of Environment, Energy & Climate Change	George Handrinos		
Greece	National park/ PA managers	National Marine Park of Alonnisos Northern Sporades			
Greece	National park/ PA managers	National Marine Park of Zakynthos			
Greece	NGOs	WWF Hellas	Giorgos Catsadorakis		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Greece	NGOs	MOM	Vangelis Paravas		
Greece	Research institutes, groups and individuals	Dr. Diethrich Ristow			
Greece	Research institutes, groups and individuals	Technological Educational Institution of Ionian Islands	George Karris		
Greece	Research institutes, groups and individuals	Hellenic Centre for Marine Research	Panagiota Peristeraki		
Greece	Wind energy community	agency for renewable energy sources (division of ministry of environment)			
Greece	Wind energy community	The Centre for Renewable Energy Sources and Saving (CRES)			Dealing with issues of renewable energy sources.
Italy	BirdLife Partner	LIPU - BirdLife Italy	Giorgia Gaibani		
Italy	National governments	ministry of the environment			
Italy	National park and Marine Protecte Areas/ PA managers	Carbonara AMP manager			
Italy	National park and Marine Protecte Areas/ PA managers	Sinis AMP manager,			
Italy	National park and Marine Protecte Areas/ PA managers	Capo Caccia AMP manager,			
Italy	National park and Marine Protecte Areas/ PA managers	Ventotene AMP manager			
Italy	National park and Marine Protecte Areas/ PA managers	Circeo National Park manager			
Italy	National park and Marine Protecte Areas/ PA managers	Maddalena National Park manager			
Italy	National park and Marine Protecte Areas/ PA managers	Gargano National Park manager			
Italy	National park and Marine Protecte Areas/ PA managers	Porto Conte National Park manager			
Italy	National park and Marine Protecte Areas/ PA managers	Ente Parco Nazionale Arcipelago Toscano, Italy	Francesca Giannini		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Italy	National park and Marine Protecte Areas/ PA managers	Area Marina Protetta Tavolara	Augusto Navone		
Italy	National park and Marine Protecte Areas/ PA managers	Riserva Naturale Orientata Linosa e Lampione			
Italy	National park and Marine Protecte Areas/ PA managers	Riserva Marina Isole Egadi			
Italy	National park and Marine Protecte Areas/ PA managers	Area Marina Protetta Isole Pelagie			
Italy	Regional and local governments	ARP Lazio	Dario Capizzi		
Italy	Regional and local governments	regional and local authorities (managing Natura2000 sites)			
Italy	Research institutes, groups and individuals	Medamaravis	Antonio Torre		
Italy	Research institutes, groups and individuals		Sergio Nissardi		
Italy	Research institutes, groups and individuals		Ferdinando Corbi		
Italy	Research institutes, groups and individuals	University of Palermo	Bruno Massa		
Italy	Research institutes, groups and individuals	ISPRA - Istituto Superiore per la Protezione e la Ricerca Ambientale	Jacopo Cecere		
Italy	Research institutes, groups and individuals	Ornis Italica	Giacomo dell'Omo		
Italy	Research institutes, groups and individuals	Local ornithological groups			
Italy	Research institutes, groups and individuals	ISPRA - Istituto Superiore per la Protezione e la Ricerca Ambientale	Nicola Baccetti		
Italy	Research institutes, groups and individuals	Nature and Environment Management Operators (NEMO)S.r.l., Italy	Paolo Sposimo		
Italy	Industrial fisheries	Fishing industry			
Italy	Local fishermen	Fishermen			

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Malta	Industrial fisheries	Fishing industry			
Malta	Island inhabitants	Hunters		Contact hunters association via Joe Sultana and John J Borg	
Malta	Local fishermen	Fishermen	Fishermen Headquarters; Maritime squadron		
Malta	National governments	Armed Forces of Malta			
Malta	National governments	Malta Maritime Authority	Ports & Yachting Directorate; Merchant Shipping Directorate		
Malta	National governments	Maltese government			
Malta	National governments	Heritage Malta/ National Museum of Natural History, Malta	Heritage Malta - Head Office		
Malta	National governments	Heritage Malta	John J Borg		
Malta	Regional and local governments	Malta authority for planning and environment.			
Malta	Regional and local governments	Local Councils			
Malta	Research institutes, groups and individuals	AquiLarus Bird Study Group			
Malta	Research institutes, groups and individuals	Malta Centre for Fisheries Sciences/ Centru Malti ghax-Xjenza u sajd (MCFS)	Fish and Farming Regulation and Control Division		
Malta	Research institutes, groups and individuals		Joe Sultana		
Malta	Tourist businesses	Hoteliers			
Malta	Tourist businesses	Campers/ Tourists			
Malta	Tourist businesses	Tourism industry			
Malta	Wind energy community	Windfarm Impact Assesment	Dr. Joe Doublet		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Malta	Wind energy community	Windfarm developers			
Slovenia	BirdLife Partner	DOPPS			http://www.ptice.si/
Slovenia	National governments	Ministry of the Environment and Spatial Planning of the Republic of Slovenia Javni zavod Krajinski park Strunjan, Slovenia			
Spain (Minorca)	Research institutes, groups and individuals		Rafael Triay		
Spain (Minorca)	Research institutes, groups and individuals		Raull Escandell		
Spain (Minorca)	Research institutes, groups and individuals		Rocio F. Grana		
Turkey	BirdLife Partner	Doga Dernegi	Sureyya Isfendarioglu	Contact Andalucian government via Gonzalo M. Arroyo (gonzalo.munoz@uca.es)	
Turkey	BirdLife Partner	RSPB	Jose Pedro Tavares		
Turkey	National park/ PA managers				
Turkey	Research institutes, groups and individuals		Dilek Sahin		
Tunisia	Research institutes, groups and individuals				
Tunisia	National park/ PA managers				
International	Independent companies	Oil companies (as well as oil rigs, transport and petrochemical plants)			
International	Independent companies	Shipping agents			To make it financially expensive for boats to come close to colonies
International	Independent companies	Insurance companies			To make it financially expensive for boats to come close to colonies
International	NGOs	UNDP			

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
International	NGOs	Regional Activity Centre for Specially Protected Areas (RAC/SPA)			
International	NGOs	IUCN International office			

Developing a Population Status Assessment for Yelkouan shearwater Puffinus yelkouan

Wendesday 19th October 2011

Porto Conte Regional Park Headquarters, Porto Conte, Alghero, Sardinia

Workshop Report

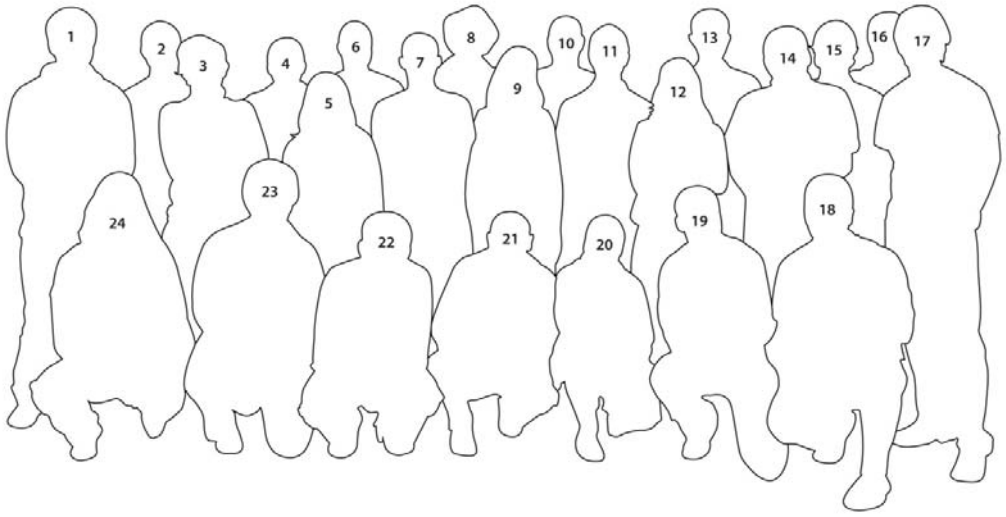
Workshop organisers contact details:

Mia Derhé European Conservation and Research Officer, BirdLife International
BirdLife International
Wellbrook Court
Girton Road
Cambridge, CB3 0NA, UK
Tel: +44 (0)1223 279860 | Fax: +44 (0)1223 277200
Email: mia.derhe@birdlife.org | **Web:** www.birdlife.org

Iván Ramírez European Marine Coordinator, BirdLife International
Portuguese Society for the Study of Birds
National Headquarters
Avenida da Liberdade, 105 – 2º Esq. 1250-140
Lisboa – Portugal
Tel. +351 213 220 430 | **Fax.** +351 213 220 439 |
Email: ivan.ramirez@birdlife.org | **Web:** www.spea.pt

List of Attendees

Attendee	Organisation	Country
Ivan Budinski	Association for Biological Research-BIOM	Croatia
Robert Crnković	Hrvatsko ornitološko društvo/ Croatian Ornithological Society	Croatia
Clara Peron	Centre d'ecologie fonctionelle et evolutive - CEFE CNRS	France
Elodie Debize	Marseille Island Natural Reserve	France
Jacopo Cecere	ISPRA	France
Mathieu Thevenet	PIM Initiative	France/ Mediterranean
Jakob Fric	Hellenic Ornithological Society	Greece
Nicola Baccetti	ISPRA	Italy
Paolo Becciu	Ornis Italica	Italy
Giorgia Gaibani	LIPU	Italy
John Borg	Heritage Malta	Malta
Michael Sammut	AQUILARUS	Malta
Maria Magalhães	Department of Oceanography and Fisheries, University of the Azores	Portugal (Azores)
Jose Manuel Arcos	SEO/ BirdLife	Spain
José Pedro Tavares	RSPB	Turkey
Dilek Şahin	Istanbul University, Institute of Life Science	Turkey
Ortaç Onmuş	Department of Biology, Ege University	Turkey



1. Gilles Faggio
2. Giacomo Dell'omo
3. Elodie Debize
4. Michael Sammut
5. Dilek Şahin
6. Jakob Fric
7. Paolo Becciu
8. Xaver Monbailliu
9. Giorgia Gaibani
10. Robert Crnković
11.
12. Mia Derhé
13. Nicola Baccetti
14. John Borg
15. José Pedro Tavares
16. Jose Manuel Arcos
17. Gonzalo M. Arroyo
18. Clara Peron
19. Mathieu Thevenet
20. Ivan Budinski
21. Joe Sultana
22. Maria Magalhães
23. Jacopo Cecere
24. Ivan Ramirez

Workshop Programme

Facilitators: Mia Derhé and Iván Ramírez (BirdLife International)

08:30 Hotel pick-up and coach travel to venue

09:30 Welcoming session

- Objectives of the workshop:
    - Explain the context for this work – why are we doing it, and why now?
    - To verify the data collected, clarify any inconsistencies and agree on national figures and trends
    - To elaborate a common expert assessment of the data (interpretation)
    - To identify key knowledge gaps
    - To identify and map key stakeholders and their interests in the species
        - How best to consult stakeholders in future assessment process?
        - How to identify where they agree and disagree (population size, trend and threats)?
        - How to reconcile these views as much as possible?
        - How to decide whether or not it is relevant to produce a recovery plan despite disagreement?
    - To reach consensus on population size, trend and threats to the species
- Output of the workshop:
    - Final population status assessments to be prepared after the workshop and circulated for comments
    - Recommendations for priority research and monitoring activities needed
    - Workshop summary report

10:30 Review of population size data

- Presentation of latest population size data obtained through expert consultation and literature review
- Fill in missing data where possible
- Verification and improvement of population size data by country (where possible)
- Reach consensus on population size from each country and resulting global population size estimate- does everyone agree on the estimates?
- Does a consensus exist on counting methods?

11:30 Review of population trend data

- Presentation of latest population trend table obtained through expert consultation
- Fill in missing data where possible
- Verification and improvement of population trend data by country (where possible)

- Ensure agreement on national trends
- Ensure agreement on overall trend
    - Presentation of trend breakdown and calculations
- Discuss population trend in comparison to that reported by Bourgeois & Vidal (2008)

13:00 Lunch

14:00 Review of threat data

- Presentation of threat data obtained through expert consultation
- Presentation of threat impact score calculations
- Are there any threats missing?
- Reach consensus on overall impact score for each threat
- Rough time estimate of when each threat began impacting the species if possible (so that we can project the trend from that time onward)

15:00 Stakeholders and interests

- Presentation of list of identified stakeholders and their interests
- Stakeholder representatives to provide information on interests and opinion of stakeholders on population status and threats
- How to incorporate stakeholder opinions, knowledge and interests in future assessments - discussion
    - How best to consult stakeholders in future assessment process?
    - How to identify where they agree and disagree (population size, trend, threats)?
    - How to reconcile these views as much as possible?
    - How to decide whether or not it is relevant to produce a recovery plan despite disagreement?

15:30 Discussion on conservation implications

- Presentation of IUCN Red List categories and criteria
- Discussion on potential Red List global threat status implications of this assessment

16:00 Identification of knowledge gaps

- Identification of knowledge gaps – particularly with respect to evaluating the global threat status of the species
    - What information are we lacking in order to make an accurate assessment of the population status?
        - Missing population size data
        - Missing/ unknown population trend data
        - Demographic parameters

16:30 Research and monitoring needed

How can we obtain the information we need? What kind of time-scale would this take?
Prioritise actions:

- ***Research***
    - Population size
    - Threats
    - Demographic parameters

- ***Monitoring***
    - Population trends
    - Threats

17:00 Conservation actions

Prioritise

17:30 Wrapping up, conclusions and thanks

Appendix 5: The threats affecting Cory's shearwater with corresponding threat status scores and the countries affected. Final threat status score is calculated by averaging the threat status score for each country.

Threat	*Threat level combined with no. countries*	*Threat status*	*Final threat status score*	*No. countries affected*	*Countries affected*	*Trend of threat*
Predation by rats	7.0	Medium	5.9	8	Croatia; France; Greece; Italy; Malta; Azores, Berlengas and Madeira; Balearics; main islands of Canary Islands	Increasing
Fishing bycatch (large- and small-scale)	6.4	Medium	5.8	7	Croatia; Greece; Balearics; Azores, Madeira; Mediterranean Spain; France; Italy; Malta	Unknown
Large-scale fishing bycatch	5.5	High	7.0	4	Balearics; France; Malta; Mediterranean Spain	Unknown
Small-scale fishing bycatch	5.2	Medium	5.4	5	Croatia; Greece; Italy; Azores, Madeira; Mediterranean Spain	Increasing
Light pollution	4.9	Medium	5.7	4	Italy; Malta; Portugal (Azores and Madeira); Canary Islands	Increasing
Tourism development	4.7	High	6.3	3	Malta; Mediterranean Spain; and Canary Islands	Stable
Competition with fisheries	4.0	High	6.0	2	Greece; Portugal (Berlengas)	Stable
Oil spills	4.0	High	6.0	2	Italy; Greece	Decreasing
Predation by cats	3.9	High	4.7	3	Italy; Malta; Azores	Increasing
Predation by dogs	3.5	High	6.0	1	Malta	Stable
Predation by ferrets	3.5	High	6.0	1	Malta	Decreasing
Noise pollution	3.5	High	6.0	1	Malta	Decreasing
Invasive species - American Mink	3.5	High	6.0	1	Italy	Unknown
Inshore, onshore and offshore windfarms	3.4	Medium	3.7	3	Italy, Greece, France	Stable
Illegal hunting	2.5	Low	3.0	2	Portugal (Azores); Spain	Unknown
Persecution/ vandalism at colonies	0.5	Low	0.0	1	Portugal	Decreasing
Geological events - landslides	0.5	Low	0.0	1	Portugal (Madeira)	Stable
Rabbits	0.5	Low	0.0	1	Portugal (Madeira)	Stable

Appendix 6 Threats affecting Cory's shearwater by country, with corresponding threat status scores calculated by combining the severity, scale and timing scores of each threat.

Country	*Subnational Unit*	*Threat*	*Final threat status score*	*Threat status*	*Parameter affected by threat*	*Trend of threat*	*References for threat*
Spain	Canary Islands	Predation by rats	8	Very high	Species mortality; Reduced reproductive success	Stable	
Portugal	Azores		8	Very high		Uknown	Monteiro et al. 1996; Fontaine et al. 2011.
Spain	Balearics		7	High		Decreasing	Unpublished reports PN Cabrera
Croatia			7	High		Increasing	
Portugal	Berlengas Islands		7	High		Increasing	
Italy			7	High		Stable	Capizzi et al 2010; Rannisi et al. 2008.
Greece			6	High		Stable	
Malta			6	High		Decreasing	Borg and Cachia-Zammit 1998.
France	Iles d'Hyères, Iles de Marseille		6	High		Stable	
Portugal	Madeira		0	Low		Increasing	Expert opinion.
Spain	Balearics	Large-scale fishing bycatch	8	Very high	Species mortality; Reduced reproductive success	Uknown	Unpublished reports PN Cabrera
Spain	Mediterranean		7	High		Stable	
France			7	High		Stable	
Malta			6	High		Decreasing	

Country	*Subnational Unit*	*Threat*	*Final threat status score*	*Threat status*	*Parameter affected by threat*	*Trend of threat*	*References for threat*
Croatia		Small-scale fishing bycatch	9	Very high	Species mortality; Reduced reproductive success	Increasing	
Spain	Mediterranean		7	High		Decreasing	García-Barcelona et al 2010; García-Barcelona et al 2010; Valeiras and Camiñas 2003; Báez et al 2011.
Italy			7	High		Stable	
Greece			6	High		Uknown	HOS, unpublished data.
Portugal	Madeira		5	High		Decreasing	Expert opinion
Portugal	Azores		0	Low		Uknown	Magalhães et al. 2008; Fontaine et al. 2011.
Malta		Light pollution	8	Very high	Species mortality; Species disturbance; Reduced reproductive success	Uknown	
Portugal	Azores		8	Very high		Stable	Monteiro et al. 1996. Fontaine et al. 2011.
Spain	Tenerife		7	High		Decreasing	Rodríguez and Rodríguez 2009; Rodríguez et al. in review.
Spain	Canary Islands		6	High		Stable	Expert opinion
Italy			5	Medium		Increasing	Baccetti et al 2005 Avocetta 29: 89-91
Portugal	Madeira		0	Low		Increasing	Expert opinion. This threat only applies to Madeira Island and Porto Santo.
Spain	Canary Islands	Tourism development	8	Very high	Species disturbance; Reduced reproductive success; Habitat loss	Stable	
Malta			6	High		Decreasing	Borg and Cachia-Zammit 1998.

Country	*Subnational Unit*	*Threat*	*Final threat status score*	*Threat status*	*Parameter affected by threat*	*Trend of threat*	*References for threat*
Spain	Mediterranean		5	Medium			Carboneras 2004.
Greece		Competition with fisheries	6	High		Stable	
Portugal	Berlengas Islands		6	High		Uknown	SPEA's staff own observations
Greece		Oil spills	6	High	Species mortality	Decreasing	
Italy			0	Low		Uknown	
Portugal	Azores	Predation by cats	8	Very high	Species mortality; Reduced reproductive success	Uknown	Monteiro et al. 1996; Fontaine et al. 2011.
Malta			6	High		Increasing	Borg and Cachia-Zammit 1998.
France	Iles d'Hyères		0	Low		Stable	
Malta		Predation by dogs	6	High	Species mortality	Stable	Borg and Cachia-Zammit 1998.
Malta		Predation by ferrets	6	High	Species mortality	Decreasing	Borg and Cachia-Zammit 1998.
Malta		Noise pollution	6	High		Decreasing	Borg and Cachia-Zammit 1998.
Italy		Invasive species - American mink	6	High		Uknown	
Greece		Inshore, onshore and offshore windfarms	4	Medium	Species mortality; Habitat degradation	Stable	
Italy			4	Medium		Increasing	
France	Golfe du Lion		3	Low		Stable	
Spain	Canary Islands	Illegal hunting	6	High	Species mortality; Reduced	Uknown	

Country	*Subnational Unit*	*Threat*	*Final threat status score*	*Threat status*	*Parameter affected by threat*	*Trend of threat*	*References for threat*
Portugal	Azores		0	Low	reproductive success	Uknown	Monteiro et al. 1996; Fontaine et al. 2011.
Portugal	Azores	Persecution/ vandalism at colonies	0	Low	Species mortality; Reduced reproductive success	Decreasing	Monteiro et al. 1996; Fontaine et al. 2011; Nature Wardens from the Regional Environment Directorate of the Azores, unpubl. data
Portugal	Madeira	Geological events - landslides	0	Low	Species mortality; Species disturbance; Loss of breeding habitat	Stable	Expert opinion
Portugal	Madeira	Rabbits	0	Low	Species disturbance; Reduced reproductive success	Stable	

Appendix 7 List of identified stakeholders for Cory's shearwater

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Algeria	National park/ PA managers	National park/ PA managers			
Algeria	Local fishermen	Local fishermen			
Algeria	National governments	Ministry of Environment and Water			
Croatia	Local fishermen	Long-line fishermen catching demersal fish, mostly hake		via local governments	Particularly local fishermen who work at tourist restaurants
Croatia	National park/ PA managers	Lastovo Archipelago Nature Park	Gojko Antica		
Croatia	NGOs	Plavi svijet	Draško Holcer		
Croatia	NGOs	Association for Biological Research-BIOM	Ivan Budinski		
Croatia	Research institutes, groups and individuals	Croatian marine research centre.			Particularly for depletion of fish stocks
Croatia	Tourist businesses	fish restaurants			
European	Wind energy community	European wind energy association			http://www.ewea.org/
France	BirdLife Partner	LPO	Thierry Micol		
France	National governments	The French agency for MPAs (AAMP : Agence des Aires Marines Protégées)	Aurore Sterckeman		Presently funding the PTT survey of breeding Cory's shearwaters in Mediterranean France
France	National governments	Conservatoire du Littoral et des Rivages Lacustres			
France	National park/ PA managers	Riou Archipelago Natural Reserve	Alain Mante		
France	National park/ PA managers	Frioul Islands Maritime Park	Patrick Vidal		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
France	National park/ PA managers	Parc national de Port-Cros (PNPC)	P.Gillet		
France	NGOs	Mediterranean Small Islands Initiative (PIM)	S.Renou M.Thévenet		
France	Research institutes, groups and individuals	Centre d'Etude Biologique de Chizé (CNRS-CEBC)	Henri Weimerskirch		
France	Research institutes, groups and individuals	Institut Méditerranéen d'Ecologie et de Paléoécologie (IMEP)			
France	Research institutes, groups and individuals	GISOM (French scientific seabird group)			
France	Research institutes, groups and individuals	CEFE (Centre d'Ecologie Fonctionelle & Evolutive)	David Grémillet		
France	National park/ PA managers	Réserve Naturelle des Bouches de Bonifacio			
France	Research institutes, groups and individuals		Karen Bourgeois		
Greece	BirdLife Partner	HOS	Jakob Fric		
Greece	Island inhabitants	Goat/ sheep stockbreeders		via ministry of environment; ministry of agriculture; and ministry of marine affairs	Difficult to contact
Greece	Local fishermen	Fishermen's Union for Southern Aegean	Demetres Zannes	HOS have links to fishing associations	
Greece	Local fishermen	Fishermen's Union for Northern Aegean		HOS have links to fishing associations	
Greece	National governments	Ministry of Environment, Energy & Climate Change	George Handrinos		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Greece	National park/ PA managers	National Marine Park of Alonnisos Northern Sporades			
Greece	National park/ PA managers	National Marine Park of Zakynthos			
Greece	NGOs	WWF Hellas	Giorgos Catsadorakis		
Greece	NGOs	MOM	Vangelis Paravas		
Greece	Research institutes, groups and individuals	Dr. Diethrich Ristow			
Greece	Research institutes, groups and individuals	Technological Educational Institution of Ionian Islands	George Karris		
Greece	Research institutes, groups and individuals	Hellenic Centre for Marine Research	Panagiota Peristeraki		
Greece	Wind energy community	agency for renewable energy sources (division of ministry of environment)			
Greece	Wind energy community	The Centre for Renewable Energy Sources and Saving (CRES)			dealing with issues of renewable energy sources.
Italy	BirdLife Partner	LIPU - BirdLife Italy	Giorgia Gaibani		
Italy	National governments	ministry of the environment			
Italy	National park and Marine Protecte Areas/ PA managers	Carbonara AMP manager			
Italy	National park and Marine Protecte Areas/ PA managers	Sinis AMP manager,			

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Italy	National park and Marine Protecte Areas/ PA managers	Capo Caccia AMP manager,			
Italy	National park and Marine Protecte Areas/ PA managers	Ventotene AMP manager			
Italy	National park and Marine Protecte Areas/ PA managers	Circeo National Park manager			
Italy	National park and Marine Protecte Areas/ PA managers	Maddalena National Park manager			
Italy	National park and Marine Protecte Areas/ PA managers	Gargano National Park manager			
Italy	National park and Marine Protecte Areas/ PA managers	Porto Conte National Park manager			
Italy	National park and Marine Protecte Areas/ PA managers	Ente Parco Nazionale Arcipelago Toscano, Italy	Francesca Giannini		
Italy	National park and Marine Protecte Areas/ PA managers	Area Marina Protetta Tavolara	Augusto Navone		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Italy	National park and Marine Protecte Areas/ PA managers	Riserva Naturale Orientata Linosa e Lampione			
Italy	National park and Marine Protecte Areas/ PA managers	Riserva Marina Isole Egadi			
Italy	National park and Marine Protecte Areas/ PA managers	Area Marina Protetta Isole Pelagie			
Italy	Regional and local governments	ARP Lazio	Dario Capizzi		
Italy	Regional and local governments	regional and local authorities (managing Natura2000 sites)			
Italy	Research institutes, groups and individuals	Medamaravis	Antonio Torre		
Italy	Research institutes, groups and individuals		Sergio Nissardi		
Italy	Research institutes, groups and individuals		Ferdinando Corbi		
Italy	Research institutes, groups and individuals	University of Palermo	Bruno Massa		
Italy	Research institutes, groups and individuals	ISPRA - Istituto Superiore per la Protezione e la Ricerca Ambientale , Italy	Jacopo Cecere		
Italy	Research institutes, groups and individuals	Ornis Italica	Giacomo dell'Omo		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Italy	Research institutes, groups and individuals	Local ornithological groups			
Italy	Research institutes, groups and individuals	ISPRA - Istituto Superiore per la Protezione e la Ricerca Ambientale , Italy	Nicola Baccetti		
Italy	Research institutes, groups and individuals	Nature and Environment Management Operators (NEMO)S.r.l., Italy	Paolo Sposimo		
Italy	Industrial fisheries	Fishing industry			
Italy	Local fishermen	Fishermen			
Malta	Local fishermen	Fishermen		Contact via Abdumula Hamza	May be diffcult to contact
Malta	Industrial fisheries	Fishing industry			
Malta	Island inhabitants	Hunters		Contact hunters association via Joe Sultana and John J Borg	
Malta	Local fishermen	Fishermen	Fishermen		
Malta	National governments	Armed Forces of Malta	Headquarters; Maritime squadron		
Malta	National governments	Malta Maritime Authority	Ports & Yachting Directorate; Merchant Shipping Directorate		
Malta	National governments	Maltese government			
Malta	National governments	Heritage Malta/ National Museum of Natural History, Malta	Heritage Malta - Head Office		
Malta	National governments	Heritage Malta	John J Borg		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Malta	Regional and local governments	Malta authority for planning and environment.			
Malta	Regional and local governments	Local Councils			
Malta	Research institutes, groups and individuals	AquiLarus Bird Study Group			
Malta	Research institutes, groups and individuals	Malta Centre for Fisheries Sciences/ Centru Malti ghax-Xjenza u sajd (MCFS)	Fish and Farming Regulation and Control Division		
Malta	Research institutes, groups and individuals		Joe Sultana		
Malta	Tourist businesses	Hoteliers			
Malta	Tourist businesses	Campers/ Tourists			
Malta	Tourist businesses	Tourism industry			
Malta	Wind energy community	Windfarm Impact Assesment	Dr. Joe Doublet		
Malta	Wind energy community	Windfarm developers			
Morocco	National park/ PA managers	Alhucema National Park manager			
Morocco	Research institutes, groups and individuals		Xavier Montbaillu		
Portugal	BirdLife Partner	SPEA	Ivan Ramirez		
Portugal	Regional and local governments	Regional Secretary for Environment – Madeira Natural Park Service			
Portugal	Regional and local governments	Câmara Municipal do Corvo			

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Portugal	Regional and local governments	Portugal Secretaria Regional do Ambiente e do Mar dos Açores			
Portugal	Research institutes, groups and individuals	Oceanography and Fisheries Department (DOP) – Azores University			
Portugal	Research institutes, groups and individuals	IMA R Center of the University of the Azores			
Portugal	Research institutes, groups and individuals	National Research Institute of Agriculture and Fisheries			
Portugal	Research institutes, groups and individuals	University of Aveiro			
Portugal	Research institutes, groups and individuals	Institute for Nature and Biodiversity Conservation (ICNB)			
Portugal	Research institutes, groups and individuals	ICNB	Manuela Nunes		
Portugal	Research institutes, groups and individuals	IPIMAR	Vitor Marques		
Portugal	Research institutes, groups and individuals	FCUL	Henrique Cabral		
Portugal	Research institutes, groups and individuals	Anopcerco	Anopcerco		
Portugal	Research institutes, groups and individuals	DGPA	(ou temos um outro contacto mais actualizado local?)		

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Portugal	Research institutes, groups and individuals	Docapesca	Docapesca		
Portugal	Research institutes, groups and individuals	SRAM	Frederico Cardigos		
Portugal	Research institutes, groups and individuals	DOP	Ricardo Santos	Contact via fishermen cooperative in the Azores; Contact Programa de Observação para as Pescas dos Açores (POPA)	
Portugal (Azores)	Island inhabitants	Island inhabitants			
Portugal (Azores)	Local fishermen	fishermen (in the Azores, the north Atlantic, and Brazil)		Contact via fishermen cooperative in the Azores	
Portugal (Azores)	Regional and local governments	Urban planners			
Portugal (Azores)	Research institutes, groups and individuals	Department of Oceanography and Fisheries, University of the Azores	Maria Magalhaes		
Spain	BirdLife Partner	SEO	Jose Manuel (Pep) Arcos		
Spain	Industrial fisheries	Bottom long-line fishing vessels targeting demersal species		Contact fisheries associations	
Spain	Local fishermen	Long-line fishing vessels and gillnet fishermen		Contact national association for fishermen (small-scale fishing)	
Spain	National governments	Spanish Ministry of Environment	Juanjo Areces		
Spain	National governments	Spanish Ministry of Environment	Isable López		
Spain	NGOs	Coast guard patrol			
Spain	Independent companies	Oil companies (oil rigs, transport and petrochemical plants, concentrated off			

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
		Tarragona)			
Spain	Regional and local governments	Regional Governments			
Spain	Research institutes, groups and individuals	IMEDEA	Meritxell Genovart		
Spain	Research institutes, groups and individuals	IEO	David Macias		
Spain	Research institutes, groups and individuals	Dept. Biology, University of Cadiz	Gonzalo Muñoz Arroyo		
Spain	Wind energy community	La Asociación Empresarial Eólica (AEE)/ The Spanish Wind Energy Association		http://www.aeeolica.org	
Spain	Wind energy community	Regional wind energy promoters			
Spain (Tenerife)	Regional and local governments	Regional and local goverments			
Turkey	BirdLife Partner	Doga Dernegi	Sureyya Isfendarioglu	Contact Andalucian government via Gonzalo M. Arroyo	
Turkey	BirdLife Partner	RSPB	Jose Pedro Tavares		
Turkey	National park/ PA managers				
Turkey	Research institutes, groups and individuals		Dilek Sahin		
Tunisia	Research institutes, groups and individuals				

Country	*Stakeholder group*	*Stakeholder*	*Stakeholder contact*	*Contact approach*	*Notes*
Tunisia	National park/ PA managers				

Developing a Population Status Assessment for Cory's shearwater Calonectris diomedea

Tuesday 18th October 2011

Porto Conte Regional Park Headquarters, Porto Conte, Alghero, Sardinia

Workshop Report

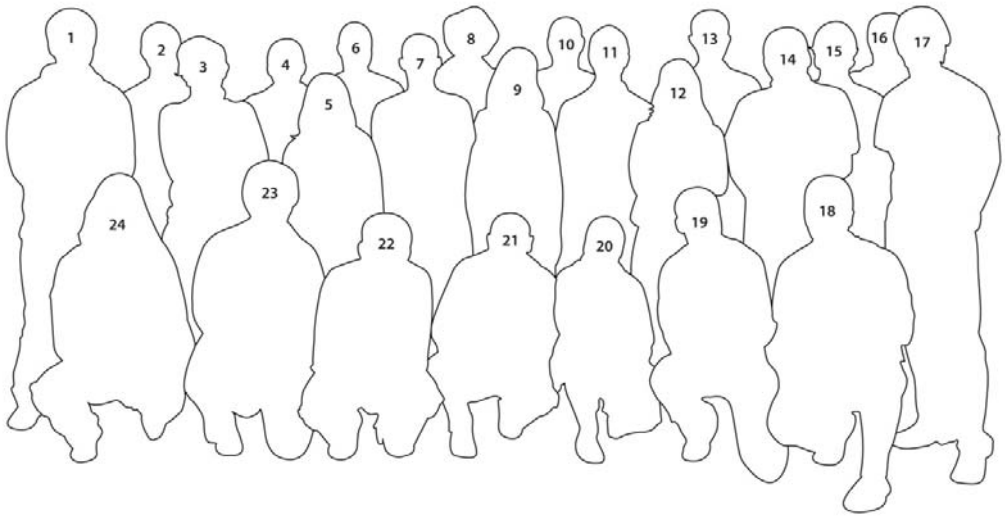
Workshop organisers contact details:

Mia Derhé European Conservation and Research Officer, BirdLife International
BirdLife International
Wellbrook Court
Girton Road
Cambridge, CB3 0NA, UK
Tel: +44 (0)1223 279860 | Fax: +44 (0)1223 277200
Email: mia.derhe@birdlife.org | **Web:** www.birdlife.org

Iván Ramírez European Marine Coordinator, BirdLife International
Portuguese Society for the Study of Birds
National Headquarters
Avenida da Liberdade, 105 – 2º Esq. 1250-140
Lisboa – Portugal
Tel. +351 213 220 430 | **Fax.** +351 213 220 439 |
Email: ivan.ramirez@birdlife.org | **Web:** www.spea.pt

List of Attendees

Attendee	Organisation	Country
Ivan Budinski	Association for Biological Research-BIOM	Croatia
Robert Crnković	Hrvatsko ornitološko društvo/ Croatian Ornithological Society	Croatia
Clara Peron	Centre d'ecologie fonctionelle et evolutive - CEFE CNRS	France
Elodie Debize	Marseille Island Natural Reserve	France
Jacopo Cecere	ISPRA	France
Gilles Faggio	Conservatoire des Espaces Naturels CEN-Corsica	France
Mathieu Thevenet	PIM Initiative	France/ Mediterranean
Xavier Monbailliu	MEDMARAVIS	France/ Mediterranean
Jakob Fric	Hellenic Ornithological Society	Greece
Danae Portolou	Hellenic Ornithological Society	Greece
Nicola Baccetti	ISPRA	Italy
Giacomo Dell'omo	Ornis Italica	Italy
Paolo Becciu	Ornis Italica	Italy
Giorgia Gaibani	LIPU	Italy
Joe Sultana	BirdLife Malta	Malta
John Borg	Heritage Malta	Malta
Michael Sammut	AQUILARUS	Malta
Maria Magalhães	Department of Oceanography and Fisheries, University of the Azores	Portugal (Azores)
Jose Manuel Arcos	SEO/ BirdLife	Spain
Gonzalo M. Arroyo	UCA	Spain
Carles Carboneras	GAVINES	Spain
José Pedro Tavares	RSPB	Turkey
Dilek Şahin	Istanbul University, Institute of Life Science	Turkey
Ortaç Onmuş	Department of Biology, Ege University	Turkey



1. Gilles Faggio
2. Giacomo Dell'omo
3. Elodie Debize
4. Michael Sammut
5. Dilek Şahin
6. Jakob Fric
7. Paolo Becciu
8. Xavier Monbailliu
9. Giorgia Gaibani
10. Robert Crnković
11.
12. Mia Derhé
13. Nicola Baccetti
14. John Borg
15. José Pedro Tavares
16. Jose Manuel Arcos
17. Gonzalo M. Arroyo
18. Clara Peron
19. Mathieu Thevenet
20. Ivan Budinski
21. Joe Sultana
22. Maria Magalhães
23. Jacopo Cecere
24. Ivan Ramirez

Workshop Programme

Facilitators: Mia Derhé and Iván Ramírez (BirdLife International)

08:30 Hotel pick up and coach travel to venue

09:30 Welcoming session

- Objectives of the workshop:
    - Explain the context for this work – why are we doing it, and why now?
    - To verify the data collected, clarify any inconsistencies and agree on national figures and trends
    - To elaborate a common expert assessment of the data (interpretation)
    - To identify key knowledge gaps
    - To identify and map key stakeholders and their interests in the species
        - How best to consult stakeholders in future assessment process?
        - How to identify where they agree and disagree (population size, trend and threats)?
        - How to reconcile these views as much as possible?
        - How to decide whether or not it is relevant to produce a recovery plan despite disagreement?
    - To reach consensus on population size, trend and threats to the species
- Output of the workshop:
    - Final population status assessments to be prepared after the workshop and circulated for comments
    - Recommendations for priority research and monitoring activities needed
    - Workshop summary report

10:00 Review of population size data

Facilitators: John J. Borg and Joe Sultana

- Presentation of latest population size data obtained through expert consultation and literature review
- Fill in missing data where possible
- Verification and improvement of population size data by country (where possible)
- Reach consensus on population size from each country and resulting global population size estimate- does everyone agree on the estimates?
- Does a consensus exist on counting methods?

12:30 Review of population trend data

Facilitator: Mia Derhé

- Presentation of latest population trend table obtained through expert consultation
- Fill in missing data where possible
- Verification and improvement of population trend data by country (where possible)
- Ensure agreement on national trends
- Ensure agreement on overall trend
    - Presentation of trend breakdown and calculations

13:00 Lunch

14:00 Review of threat data

Facilitators: Ivan Ramirez and José Pedro Tavares

- Presentation of threat data obtained through expert consultation
- Presentation of threat impact score calculations
- Are there any threats missing?
- Reach consensus on overall impact score for each threat
    - Demographic parameters affected
- Rough time estimate of when each threat began impacting the species if possible (so that we can project the trend from that time onward)

15:00 Stakeholders and interests

Facilitators: Ivan Ramirez

- Presentation of list of identified stakeholders and their interests
- Stakeholder representatives to provide information on interests and opinion of stakeholders on population status and threats
    - Identify where they agree and disagree
- How to incorporate stakeholder opinions, knowledge and interests in future assessments - discussion
    - How best to consult stakeholders in future assessment process?
    - How to identify where they agree and disagree (population size, trend, threats)?
    - How to reconcile these views as much as possible?
    - How to decide whether or not it is relevant to produce a recovery plan despite disagreement?

15:30 Discussion on conservation implications

Facilitator: Mia Derhé

- Presentation of IUCN Red List categories and criteria
- Discussion on potential Red List global threat status implications of this assessment

16:00 Identification of knowledge gaps

Facilitator: Ivan Ramirez

- Identification of knowledge gaps – particularly with respect to evaluating the global threat status of the species
    - What information are we lacking in order to make an accurate assessment of the population status?
        - Missing population size data
        - Missing/ unknown population trend data
        - Demographic parameters

16:30 Research and monitoring needed

How can we obtain the information we need? What kind of time-scale would this take?
Prioritise actions:

- ***Research***
    - Population size
    - Threats
    - Demographic parameters

- ***Monitoring***
    - Population trends
    - Threats

17:00 Conservation actions

Prioritise

17:30 Wrapping up, conclusions and thanks

Annex V Conference Report

Bird Conservation in the European Union:

PLANNING FOR RECOVERY ACTION AND SUSTAINABLE USE

CONFERENCE REPORT

Royal Belgian Institute of Natural Sciences, Brussels

Brussels, 23-24 November 2010

Organized by

BirdLife International and FACE

on behalf of the European Commission

Executive Summary

The first European Species Action Plans were adopted in 15 years ago and since then almost all European bird species listed on the Global Red List have received their recovery plan. Furthermore, 13 management plans have been approved for huntable bird species whose conservation status in the EU is considered unfavourable.

In 2010, the European Commission requested a review to be made on the effectiveness of these important tools for the conservation of threatened birds in the EU and how these processes deliver the EU commitments under the Birds Directive and beyond the EU borders. BirdLife was contracted to carry out this assessment together the Federation of Associations for Hunting and Conservation (FACE).

An important element of this work was the organisation of the International Conference **Bird Conservation in the EU: planning for recovery action and sustainable use** on 23-24 November 2010 in Brussles. It gave opportunity to 130 participants from different stakeholder groups across the EU to present their point of view, give opinion and debate on methods of improving the way these processes are organized and managed. Keynote speakers set the scene to the discussions that followed with some exciting examples illustrating both the successes and challenges to bird conservation in the EU.

The example of the increasing population of the white-tailed eagle *Haliaetus albicilla* along the Danube clearly shows how a formerly threatened species can benefit from coordinated conservation action across Europe. It has now recovered in many countries, thanks to careful management in protected areas and the challenge is how to bring it back to the wider countryside. Another example of future challenges was illustrated by the case of increasing numbers of wintering geese. On one hand they demonstrate how some species can benefit from improved protection and how adaptive some birds can be to changes in their environment, including climate change. On the other hand, the question is now how to ensure that conservation successes stories like these are not compromised by the increasing costs of managing conflicts with e.g. farmers. The need of a more flexible system of population management and conservation of sufficient habitats is now needed.

The Conference participants united around the following conclusions:

- The Conference was successful and useful in sourcing good suggestions for future improvements of species recovery planning.
- There was a prevailing agreement that conservation delivers good results, especially when it is based on good data, scientific approach and strong commitment from all stakeholders.
- Choosing the right priorities and setting good conservation goals rely on the best available data, so better coordination and cooperation is needed in its gathering.
- As the EU can only do part of the job, better coordination at international level is required among key organisations and legal frameworks. Such a process has already started and strengthened further by the Conference.
- The implementation mechanisms for recovery plans have to be made much stronger, as at present the main difficulties come from low levels of integration in structural policies such as agriculture, transport, energy and urban planning.
- The potential of cooperation among stakeholders should be used more in the future.

- The usefulness of management plans for huntable species has to be evaluated and their development and implementation – greatly improved.
- The 2020 Biodiversity Strategy offers new opportunities for recovering the threatened birds in Europe and should not remove the focus on this important task.

The Conference presentations can be found at:

http://www.birdlife.org/action/science/species/species_action_plans/europe/Conservation-conference.html

Key Questions addressed by this Conference

1. Why some plans have delivered results and others not?
2. How to improve coordination between different levels (international, European, national) as regards recovery plans? How to set a work programme that would avoid duplication and follow a logical sequence (action plans at a lower level should take into account those produced previously at a higher level)?
3. How to collect existing data so that everybody can agree as far as possible on the status of the species and the threats it's facing?
4. How to raise awareness of stakeholders on the conservation status of migratory species?
5. How to manage data gaps when a species need urgent action or when there is no agreement on its status?
6. How to use scientific data to give more objectivity to the recommendations?
7. What are the key elements to succeed in building an effective process (selection of species, production of the document, approval, implementation, monitoring) for improving the conservation status of the most endangered species? What seems to work or not to work according to the experience of Member States and NGOs? What is the most appropriate (i.e. also high value for money) format for the Recovery Plans (multispecies/single species) at EU level? What are the possible options for the future?
8. How to increase the confidence in the process? How to encourage consultation within the MS before giving an opinion? How to deal with a Plan which a MS cannot agree with?
9. How to create respect and confidence between land users and conservationists and to make them work together to achieve a common objective? How to find agreement on possible sensitive actions, e.g. a hunting ban? How to take into account all stakeholders and bring them on board? How to match recommendations set in a species recovery plan and their implementation on the field (involvement and awareness-raising of stakeholders)?
10. What should follow the approval of the Plans to boost their implementation? How translate the plans from international to national and site level for implementation? How to make the Plans operational for site managers? Designation of a coordinator? Regular workshops?

Session 1

The opening session of the Conference set the scene for the discussions in the next sessions. Mr Ladislav Miko, Director of the Nature Directorate in DG Environment reminded about the role bird recovery has in the EU biodiversity policy and recalled the expectations of the European Commission from this Conference, presented as Key Questions for discussion.

Mr Georg Frank, Project manager in the Danube Auen National Park in Austria made an inspiring presentation about the conservation success story of the recovery of the White-tailed Eagle in Europe. He stressed on the role of species action plans to provide a framework for international co-operation by different stakeholders towards a common goal. Working with a flagship species such as the White-tailed Eagle gives an opportunity to address ecosystem conservation objectives, and the DANUBEOPARKS project has demonstrated this effectively.

Dr Jesper Madsen, from the Department of Arctic Environment, NERI, Aarhus University, Denmark presented and overview of the conservation status of migratory goose populations in Europe and the challenges posed, following their remarkable recovery in recent years. As grazing geese are also creating conflicts with farmers, he stressed on the need for an internationally agreed flexible system for population management of the most numerous populations. He discussed the various options for goose management available, and some of the experience in recent examples such as the Framework for management of geese in the wider international Wadden Sea area, including: Prioritization of management areas, application of 'stick and carrot' approach, harmonization of schemes across borders, encouragement to use geese as a valued natural asset.
He recalled that goose management has to be undertaken and coordinated at a flyway level and reviewed the available frameworks: Bi-lateral national agreements, EU Birds Directive, African-Eurasian Waterbird Agreement of the Convention of Migratory Species (CMS). There is no available experience with such management in Europe. A pilot attempt to develop an adaptive management plan for the Svalbard population of the Pink-footed Goose is under preparation.

He concluded that:

- General recovery and growth of goose populations in Europe constitutes a major conservation success
- Despite conservation instruments at hand, serious problems prevail for some populations, with insufficient understanding of causes of decline and appropriate conservation actions
- Continued growth of populations constitutes an increasing economic cost to society; lack of appropriate management tools at the right scale
- Need for an integrated structural approach at flyway, national and regional level
- Regional approach to management combined with adaptive flyway management are ways forward
- Requires stakeholder agreements, co-operation, shared learning and commitments, from farmers to scientists

Ms Ivana d'Alessandro, Secretary of the Bern Convention recalled the role and long history of the convention in bird conservation and recovery, by developing and endorsing 54 species action plans.

She stressed on the contribution of the Bern Convention as a platform for international cooperation for:

- Forum of discussion and laboratory of ideas (expert groups)
- Effective participation of all relevant stakeholders (contracting parties and observers)
- Legal opportunities for effective implementation (recommendations)
- Monitoring of implementation (specific themes and case-file system)

Mr Sergey Dereliev, Technical Officer of AEWA spoke about the need of improved international cooperation for the implementation of a flyway approach to bird conservation. He recalled the mechanisms and achievements of AEWA in species recovery planning and elaborated on the provisions for enhanced plan implementation promoted by AEWA such as the Species Working Groups and Memorandums of Cooperation signed with contracting parties and international organizations for this purpose. He outlined the following areas for improvement as regards international cooperation:

- Align methods and objectives of species prioritisation
- Synchronise development, consultation and endorsement of plans (incl. review, update, revision).
- Coordinated implementation, reporting and monitoring

Session 2

The organizations implementing this contract (BirdLife International and FACE) had the opportunity to inform the Conference participants about the progress made to date under the various project packages. Three speakers presented three of the draft documents developed:

Dr Ian Burfield, Science and Data Manager, BirdLife Europe

- *Method of prioritisation of species for conservation planning based on quantitative data*

Mr Boris Barov, Conservation Manager, BirdLife Europe

- *Taking stock of the experience with recovery plans: strengths, weaknesses and proposals for improvement*

Mr Cy Griffin, Biological Data Manager, FACE

- *The role of the Key Concepts document, proposed system for regular updating*

The three documents have been made available to the participants on a website. They were subsequently revised and updated and are now submitted to the European Commission as technical report for further consideration.

Session 3.1 Collaboration on Data and Monitoring

Chair Dr Ruud Foppen, SOVON and EBCC, Netherlands

Speakers
Dr Nicholas J. Aebischer, GWCT, UK
Collaboration at national level –the UK BAP and Avian Population Estimates Panel (APEP), UK

Mr Simon Delany, Wetlands International
International collaboration in data collection and monitoring of species the example of the International Waterbird Census and Waterbird Population Estimates

Discussion

- Potential for overlaying data from IWC with ringing recovery data to assess connectivity of sites and coherence analysis (links to SPAs). EC funding to WI/EURING for avian flu analysis showed potential value of this.

- Ringing also provides demographic data (capture – mark – recapture, e.g. via CES monitoring) which can help explain mechanisms behind observed trends. It is needed to explore value of this for rare species (most valuable for common and widespread species).

- Many countries changed systematics and taxonomy in last few years – need to ensure that this does not cause problems when combining data

- Valuable schemes as the International Waterbird Census should not be taken granted. Funding is needed to sustain it, and appeal has been made twice to AEWA parties, but still no solution. Although costs are modest, on-going (or at least regular) funding is essential to maintain institutional coordination, which leverages millions of Euros worth of volunteer effort. Same applies to e.g. EBCC/PECBMS, EURING, etc.

- EC funds relevant activities that support policy objectives. BirdLife and FACE already benefit from core grants – WI could apply. EC has set out plans to make some funding available for 2013 reporting. But EC finances are also tight and stringently controlled so need to temper ambitions.

- What might other priorities be, e.g. new European breeding/winter atlas?

- Need to justify expenditure using payback in terms of ecosystem services. If we make investments, what are the benefits we get?

- Question to EC: what would happen if existing schemes stopped operating due to lack of resources? Volunteer-based schemes are generating data via citizen science at minimal expense and are used by EC to influence environmental policy, so should not be taken for granted – also not by AEWA, Bern, Ramsar, etc.

- Legal duty of nature policy implementation is on MS. EC will try to support international coordination activities where it can (policy relevant), but there is no huge crock of gold for supporting new schemes.

- Participants call on the EC to send clearer signals to MS about need for data from monitoring for reporting processes. The potential of Rural Development funds for funding such work has not yet been fully exploited.

- Re. funding, has consideration been given to opportunities for advertising/sponsorship for international research/monitoring schemes from companies (e.g. Swarovski)? There are some national examples, but nothing at multinational level.

- Need to clarify what we need data for. Is it to assess status of species (to then decide whether need SAP/MP)? Or is to info to assess implementation and effectiveness of SAPs/MPs?

Session 3.2 : Stakeholder participation and acceptance

Chair Mr Joseph Van der Stegen, DG Env

Speakers
Ms Sara Cabezas Díaz, SEO/BirdLife's Imperial Eagle Stewardship Scheme and Mr Juan Carlos Rubio Aragonés

- *Improving habitats of the Imperial Eagle, example from Spain, Imperial Eagle Stewardship Scheme*

Mr Guillaume Rousset, ONCFS, France

- *How to improve the acceptance of action and management plans among key stakeholders?*

1. Presentation: Improving habitats of the Spanish Imperial Eagle (SIE)
➔SIE: suffers from habitats' simplification, decline of rabbits, poisoning, electrocution…
➔SIE seen as a competitor by hunters (predator)
➔Measures to improve the habitats: cover on ploughed lands, stubble, beetle banks (AEM), burrows for rabbits, organic farming, power lines improved… Initially, funded by SEO. Now implemented by landowners without funding.
➔Landowners: need to be involved, good land management delivers conservation benefits for free, legitimate compensation measures for some measures, Sites of Community Interest not funded

Discussion

- *What motivates stakeholders to support conservation of threatened species?*
- *How to increase participation and overcome mistrustful relationships?*

2. How to improve acceptance of Recovery Plans by stakeholders?
➔Success depends on the involvement of land managers and hunters (huntable species)
➔5 principles to be respected:
1) Clear justification,
2) confidence,

3) competence (realistic measures),
4) involvement of all concerned parties (scientists, stakeholders…) in the different stages,
5) measures beneficial to the species and to the stakeholders

Example of the draft EU Management Plan for the Woodcock

3. Having an Action Plan for a species or not?

➔The need must be shared by stakeholders to ensure the acceptance of the Action Plan

4. Collection of data

➔At local level: relevant information can be collected from field actors, NGOs, scientist

5. Consultations

➔Experts at a first stage and then stakeholders' consultation
➔Great potential for progress in sharing views between all parties and dialogue
➔Agreement at EU level v. regional/national level

6. Content of the Action Plan:

➔Need to adapt it to the EU regional context? Need to make Action Plan more relevant at regional level
➔Which measures as regards hunting? Restrictions on hunting v. measures beneficial to the species and the stakeholders – Measures imposed v. measures understood and accepted by hunters
➔When restrictions on hunting should be taken (Lapwing)?

7. Implementation and Funding:

➔Potential for conservation among stakeholders (landowners, hunters…)
➔How to ensure long term management with irregular funding?
➔Sometimes lack of knowledge, awareness raising of local actors

8. Monitoring: not discussed in details

➔In some cases: Ringing (Woodcock)

Session 3.3 – The role of science in Recovery Planning

Chair Mr David Stroud, JNCC, UK

Speakers

Dr Mark Eaton, RSPB, UK

- *Use of quantitative data to set conservation objectives at national level*

Dr Geoff Hilton Wildfowl and Wetlands Trust

- *The role of population viability analyses and population modelling in recovery plans.*

Dr G. Scott Boomer, Coordinator of the Adaptive Harvest Management Working group, USFWS

- *The scientific and practical aspects of sustainable harvesting of populations. The experience of the US.*

Discussion

A. Setting objectives and targets for species recovery

1. Importance of a structured approach to species recovery. Demographic modelling useful for four AP elements:

  - Diagnosis of threats
  - Quantify threat impacts
  - Quantify the impact of conservation action
  - Setting (SMART) recovery targets

+ what you get for your Euros ...

2. Modelling has huge value to inform setting of objectives and targets:

  - Framework for rigorous, evidence-based plans
  - Scenario setting ("what if…?" questions)
  - Avoids weaknesses in aspirational targets and increases accountability
  - **Keep it simple** – even simplest modelling usually possible and of value
  - Improve sharing of expertise, best practice and common standards

3. (Non-technical) guidance documentation on more objective (realistic?) approaches to Recovery Plan target setting would be useful

4. High-level target setting – need to balance aspiration and realism. Difficult! The political process doesn't wait - need to grasp and run with current opportunities even if not (scientifically) ideal

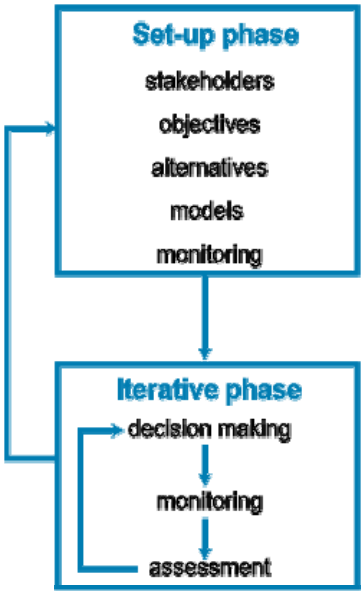
5. Conservation action works – BUT

  - Needs focussed efforts
  - Sustained inputs
  - Governmental commitment and financial support
  - Needs to be at a sufficiently large scale

6. Importance of volunteer collected data – fundamental to knowledge of many species

  - Need to sustain (and enhance governmental inputs)
  - Massive financial multiplier effects

B. Designing and implementing adaptive harvest strategies



1. Adaptive management is "Decision making in the face of uncertainty"

2. Key needs

   - Governance oversight of process
   - Monitoring (demographic) information routinely gathered
   - Modelling of scenarios and feedback loops
   - Clear distinctions between policy & science in management process

3. Way forward?

   - 'Learn by doing' – value of simple/pilot exercises in simple flyways
   - Knowledge exchange is critical
   - Need to balance realism while avoiding inhibiting the potential for progress in developing desirable new (international) systems

Session 3.4: Specific challenges for the conservation of migratory birds – need of effective coordination at flyway level

Chair: Mr Sergey Dereliev, UNEP/AEWA

Speakers

Dr Martin Wikelski, Max Plank Inst. of Ornithology

- *Monitoring bird migration in the West Palearctic - current knowledge, methods and gaps*

Mr Guy-Noël Olivier, OMPO

- *Monitoring migratory bird populations outside of the EU- challenges*

Dr Martin Flade, Brandenburg Environmental Agency, Chairman of the BirdLife Aquatic Warbler Conservation Team

- *How does international cooperation in species monitoring and conservation work in practice? The case of Memoranda of Understanding under the CMS*

Discussion

How to collect data so that everybody can agree as far as possible on the status of the species and the threats it's facing?

Three areas for improvement identified:

A. Links to science must be strengthened

- Prioritisation of research, monitoring and data collection
- Joint gap analysis of scientific knowledge
- Published in peer-reviewed journals

B. Better use of technology

- Take advantage of new developments in technology for tracking movements, such as ICARUS
- Put together a priority species list for research to be presented to the European Air Safety Agency (EASA)

C. Improved coordination among players

- Overall coordination of the entire SAP cycle (streamlined species/population prioritisation, SAP drafting, implementation and monitoring) as well as roles and division of tasks between the various legal frameworks
- Get all the players to regularly talk to each other - establish a joint inter-agency coordination body
- One SAP per species/population - no proliferation of plans at supra-national level
- EU players to take action outside of the EU, incl. transfer of knowledge and expertise
- Species Working Groups to involve all Range States, not only those that are parties to the respective legal framework having the leading role on the conservation of the respective species
- All dependant on commitment and funding

Session 4.1 Improving the consultation process

Chair Mr Angus Middleton, CEO and Director of Conservation, FACE

Speakers

Mr Ariel Brunner, BirdLife Europe

- *Towards an optimal system for adoption and implementation of recovery plans by MS and on international level*

Mr Angus Middleton, FACE

- *What methods for consultation with stakeholders should be followed?*

Discussion

How to improve consultation with stakeholders on recovery plans?

- The process is the recovery of the species, not the production of the plans
- Motivation and enforcement work together
- Incentives for people on the ground are important motivator
- Effective communication is key to the success:
    - Translating actions into the right language
    - Packaging actions into policy/sectors
    - Monitoring and feedback communication
- Inclusive and systematic consultation but ensuring scientific rigour
- Results orientation

Session 4.2 Boosting the implementation of recovery plans

Chair **Dr Szabolcs Nagy**, Head of Biodiversity Policy, Wetlands International

Speakers

Mr Frank Vassen, DG Env, LIFE Unit

- Present and future role of LIFE in species recovery projects

Mr Rainer Raab, Technisches Büro für Biologie

- The catalysing role of Species Conservation Teams – key drivers of plan implementation

Discussion

How should Member States support the implementation of recovery plans?

- Much stronger implementation is needed
- A working model is required, to combine:
    - Enforcement
    - Incentive
    - Communication
    - Coordination
- National action plans have a key role – encourage their use by MS
- National species coordinators – a network should be created and serviced
- National Natura 2000 Programming is a new opportunity (PAFs)
- At site level – species plans have to be integrated in Natura site management plans. A link between the two has to be made explicit.

Conference Conclusions and Recommendations

1. Cooperation in data collection must be improved

- Mechanism at national level is very helpful (e.g. national panels)
- Standards to be set and agreed at international level
- Capitalize on existing cost-effective methods
  - ➔Coordination at national/regional level is a challenge
  - ➔Important role for Member States to show responsibility
  - ➔EC could encourage MS to use available funds more (RD)
- Still some information sources remain unused
  - ➔E.g. EURING, hunting bag data
  - ➔New technologies applied on existing data (powerful)
- International coordination: EC, AEWA, RAMSAR, Bern – joint efforts required (coordination and funding)

2. The need for improved coordination among international bodies was agreed

Establishment of a Coordination group was proposed, to serve as:

- Platform for agreeing priorities (Inter-agency coordination)
- Avoiding duplication
- Taking lead and responsibilities (incl. funding)
- Monitoring progress
- Guiding implementation

EU has the potential to lead and support actions beyond EU (e.g. LIFE)

- Knowledge, capacity building, resources
- International Species Working Groups – ways to give them an official role.

3. Leadership for the development and implementation of plans

- Recovery plans can be used to inform policy development at EU and MS level
- Biogeographical evaluation
- Potential roles for EC, MS and Civil Society
  - ➔Focal points, Guardians, Working groups, etc

4. Improve the implementation of plans should be priority

- Much stronger implementation is needed
- A working model is required, to combine:
  - ➔Enforcement
  - ➔Incentive
  - ➔Communication

➔Coordination

- National action plans have a key role – encourage their use by MS
- National species coordinators – a network should be created and serviced
- National Natura 2000 Programming is a new opportunity (PAFs)
- At site level – species plans have to be integrated in Natura site management plans. A link between the two has to be made explicit.

5. Integration of biodiversity/bird recovery into sectoral policies

- At MS level - recovery plans are tools for the clarification and implementation of legal obligations – and must be used so by MS and by the EC
- Challenge of integration into structural policies remains. This issue has to be explored further.
- The need for integration is growing with new emerging policies (e.g. renewable energy, infrastructure, climate change adaptation).
- Integration is possible when:
- Done systematically
- Promoted and pushed forward (leadership needed)
- ! EC Communication on Financing Natura 2000 – an opportunity to highlight the role of recovery plans.

6. Stakeholder acceptance and participation

- Stakeholders involved at many levels
  - ➔Owners, managers, resource users (site level)
  - ➔Stakeholder organisations (national level)
  - ➔Need to adapt the consultation process to these levels
- Basic principles for participative conservation need to be followed
- Positive communication has a key role
- Maximize the opportunity for stakeholders to contribute

7. The role of science in conservation of species

- Science to inform key decisions and processes, but remain independent and impartial
- High quality objective setting (measure effectiveness and cost efficiency) – has to be expolored further
- Accountability and transparency, reality check
- New tools required to deal with new challenges

8. Migratory birds – specific challenges

- New tools to study bird movements are available – make them work for conservation!
  - ➔Allign research to conservation needs
  - ➔Ask the right questions
  - ➔Communicate priorities to scientists (gaps analysis!)

- Migratory birds will benefit from improved coordination among institutions and scientists

9. Consultation with member states and stakeholders

- Consultation to serve successful implementation
- Using the right language and terminology
  - ➔According to the target audience
  - ➔Repackaging of recovery plan actions into policy relevant measures
- Result orientated plans – the results have to be agreed and communicated
- Plans have to be kept as living tools

10. Proposals for future guidance documents to be developed at EU level

- Manual for implementation of Recovery Plans by MS
- Guidance document on recovery objective setting
- EU to trial Adaptive Management (e.g. pink-footed goose)

CONFERENCE PROGRAMME

23 Nov	DAY ONE
9.00	**Opening session** , Chair **Dr Didier Vangeluwe**, Royal Belgian Institute for Natural Sciences **1.1 Welcoming speech** by **Mr Ladislav Miko**, Director for the Nature Direcorate in DG Environment
9.20	**1.2 Conference objectives and programme**, **Mr Boris Barov,** BirdLife Europe
9.30 9.30-9.50 9.50-10.10	**1.3 Setting the scene:** Two inspiring case studies to celebrate the success of bird conservation in the EU: **Mr Georg Frank**, Donau-Auen National Park, Austria *a. The White-tailed Eagle along the Danube: building international cooperation on the successful recovery of the species* **Dr Jesper Madsen**, NERI Denmark *b. Flyway conservation of migratory geese – a wide range of possible management strategies*
10.15	**1.4 International coordination in bird conservation**, needs and priorities – the perspective of the Multi-national Environmental Agreements, **Ms Ivana d'Alessandro,** *Secretary of the Bern Convention, Council of Europe, Biological Diversity Unit* **Mr Sergey Dereliev**, Technical Officer, UNEP-AEWA
10.45	**Coffee break**
11.15 11.20-11.50 11.50-12.20 12.20-13.00	**2.1 Presenting the** preliminary **results of this contract and introduction to the discussions** Chair **Mr Angelo Caserta**, Regional Director, BirdLife Europe **Dr Ian Burfield,** Science and Data Manager, BirdLife Europe (align the timetable and the text) *a. Method of prioritisation of species for conservation planning based on quantitative data* **Mr Boris Barov**, Conservation Manager, BirdLife Europe *b. Taking stock of the experience with recovery plans: strengths, weaknesses and proposals for improvement* **Mr Cy Griffin,** Biological Data Manager, FACE *c. The role of the Key Concepts document, proposed system for regular updating*[40]

[40] WD "The role of the Key Concepts document"
[5] WD "Towards an optimal system for consultation and approval of recovery plans"
NB! The documents will not be distributed. Please bring your own copy!

13.00	**Lunch break**	
14.00	**BIG ROOM**	**SMALL ROOM**
	3.1 Collaboration on data and monitoring Chair **Dr Ruud Foppen**, SOVON and EBCC, Netherlands	**3.2 Stakeholder participation and acceptance** Chair **Mr Joseph Van der Stegen,** DG Env
14.00-14.20	**Dr Nicholas J. Aebischer,** GWCT, UK *a. Collaboration at national level –the UK BAP and Avian Population Estimates Panel (APEP), UK*	**Ms Sara Cabezas Díaz,** SEO/BirdLife's Imperial Eagle Stewardship Scheme and **Mr Juan Carlos Rubio Aragonés** *a. Improving habitats of the Imperial Eagle, example from Spain, Imperial Eagle Stewardship Scheme*
14.20-14.40	**Mr Simon Delany**, Wetlands International *b. International collaboration in data collection and monitoring of species the example of the International Waterbird Census and Waterbird Population Estimates*	**Mr Guillaume Rousset**, ONCFS, France *b. How to improve the acceptance of action and management plans among key stakeholders?*
14.40-15.00	**Discussion:** *How to collect data so that everybody can agree as far as possible on the status of the species and the threats it's facing?* *How to manage data gaps when a species needs urgent action or when there is no agreement on its status?*	**Discussion:** *What motivates stakeholders to support conservation of threatened species? How to increase participation and overcome mistrustful relationships?*
15.00	**Coffee break**	
15.30	**3.3. Science and species recovery** Chair **Mr David Stroud,** JNCC, UK	**3.4 Migratory birds – specific challenges** Chair **Mr Sergey Dereliev**, AEWA
15.30-15.50	**Dr Mark Eaton**, RSPB, UK *a. Use of quantitative data to set conservation objectives at national level*	**Dr Martin Wikelski**, Max Plank Inst. of Ornithology *a. Monitoring bird migration in the West Palearctic - current knowledge, methods and gaps*
15.50-16.10	**Dr Geoff Hilton** Wildfowl and Wetlands Trust *b. The role of population viability analyses and population modelling in recovery plans.*	**Dr Guy-Noël Olivier**, OMPO *b. Monitoring migratory bird populations outside of the EU- challenges*
16.10-16.30	**Dr G. Scott Boomer**, Coordinator of the Adaptive Harvest Management Working group, USFWS *c. The scientific and practical aspects of sustainable harvesting of populations. The experience of the US.*	**Dr Martin Flade**, Brandenburg Environmental Agency, Chairman of the BirdLife Aquatic Warbler Conservation Team *c. How does international cooperation in species monitoring and conservation work in practice? The case of Memoranda of Understanding under the CMS*

16.30-17.00	**Discussion:** *How to collect data so that everybody can agree as far as possible on the status of the species and the threats it's facing?*	**Discussion:** *How to collect data so that everybody can agree as far as possible on the status of the species and the threats it's facing?*
17.00	**End of the day**	

DAY 2 **24 Nov**	**BIG ROOM**	**SMALL ROOM**
9.00	**4.1 Consultation and adoption of plans** **Chair Mr Angus Middleton**, CEO and Director of Conservation, FACE	**4.2 Boosting the implementation of plans** Chair **Dr Szabolcs Nagy**, Head of Biodiversity Policy, Wetlands International
9.00-9.20 9.20-9.40	**Mr Ariel Brunner**, BirdLife Europe *a. Towards an optimal system for adoption and implementation of recovery plans by MS and on international level* **Mr Angus Middleton**, FACE*b. What methods for consultation with stakeholders should be followed?*	**Mr Frank Vassen**, DG Env, LIFE Unit *a. Present and future role of LIFE in species recovery projects* **Mr Rainer Raab**, Technisches Büro für Biologie *b. The catalysing role of Species Conservation Teams – key drivers of plan implementation*
9.40-10.00	**Discussion:** *How to improve consultation with stakeholders on recovery plans?*	**Discussion:** *How should Member States support the implementation of recovery plans?*
10.30	**Coffee break**	
11.00	**5. Reporting back results and recommendations from discussion sessions** Chair **Mr Micheal O'Briain**, Deputy Head of Unit Natura 2000, DG Environment *3.1 Cooperation in data collection (5 min report)* *3.2 Improving stakeholder acceptance and participation (5 min report)* *3.3 Setting and monitoring against measurable plan objectives (5 min report)* *3.4 Improving monitoring of migratory birds & implications to conservation and game management (5 min report)* *4.1 Making the consultation process effective (5 min report)* *4.2 Member States improve plan implementation (5 min report)* Drawing up recommendations	
12.30	**6. Final session, conclusions and next steps** Chair **Mr Fotios Papoulias**, DG Environment *a. Review of the outcomes of the Conference (BirdLife and FACE)* *b. Future work under this contract* *c. Evaluation and feedback* Closing remarks	
13.15	**End, buffet lunch**	

List of participants

International Conference

Bird Conservation in the EU: planning for recovery action and sustainable use

Brussels, 23-24 November 2010

Country	Participant details
Albania	**Ermal HALIMI** Ministry of Environment, Forestry and Water Email:ehalimi@moe.gov.al
Austria	**Gabor Wichmann** BirdLife Austria Email: gabor.wichmann@birdlife.at
	Lentner Reinhard Department for nature conservation- Tyrol Email:reinhard.lentner@tirol.gv.at
	Andreas Ranner Amt der Burgenländischen Landesregierung (Regional Government of Burgenland Email:andreas.ranner@bgld.gv.at
Bulgaria	**Elena Kmetova** Green Balkans Federation of Nature Conservation NGOs Email:ekmetova@greenbalkans.org
Belgium	**Jean-Yves Paquet** Aves-Natagora (BirdLife partner in Belgium) Email: jean-yves.paquet@aves.be
Belgium	**Marco Cipriani** European Commission Email:marco.cipriani@ec.europa.eu
	Geert Raeymaekers FOD Volksgezondheid (Federal Environment Ministry) Email:geert.raeymaekers@health.gfov.be
	Jean-Louis BOSTEELS FACE Email:jl.bosteels@storrer-law.net

Country	Participant details
Belgium	**Weiserbs Anne** Aves - Natagora Email:anne.weiserbs@aves.be
	Sarah Roggeman Flemish Government - Agency for Nature and Forest Email:sarah.roggeman@lne.vlaanderen.be
	Beck Olivier Leefmilieu Brussel - BIM; Brussels Environment Email:obe@ibgebim.be
	Janssens Guillaume ELO (European Landowners' Organisation) Email: wildlife@elo.org
	Wim Van den Bossche Natuurpunt (BirdLife Belgium) Email:wim.vandenbossche@natuurpunt.be
	SIMAR Jérémy Public Service of Walloon Region - Study Department of nature and farming Email:jeremy.simar@spw.wallonie.be
	Yves LECOCQ FACE Email:ylecocq@face.eu
	Thomas Ceulemans Hubertus Vereniging Vlaanderen (Flemish Hunting Organisation Email:thomas.ceulemans@hvv.be
	Chiara Orsini Environmental Bureau for Conservation and Development Email:chia.orsini@gmail.com
	Rita Santos DG MARE, European Commission Email:rita-maria.santos@ec.europa.eu
	Kerstin SUNDSETH Ecosystems LTD Email:ks@ecosystems.be
	Susanne Pedersen EC - DG Environment Email:susanne.pedersen@ec.europa.eu

Country	Participant details
	Araceli Zorrilla Quinza EC- DG Environment Email:Araceli.Zorrilla-Quinza@ext.ec.europa.eu
Belgium	**Sylvia Barova** ED- DG Environment Email:Sylvia.Barova@ec.europa.eu
	Stefan Leiner EC- DG Environment Email:Stefan.Leiner@ec.europa.eu
	Olli Ojala EC - DG Environment Email:Olli.Ojala@ec.europa.eu
	Françoise Lambillotte EC - DG Environment Email:Francoise.Lambillotte@ec.europa.eu
	Mariam Sanchez EC - DG Environment Email:Mariam.Sanchez-Guisandez@ec.europa.eu
	Elena Scacciafratte EC - DG Environment Email:Elena.Scacciafratte@ec.europa.eu
Croatia	**Ivan Budinski** Association for Biological Research - BIOM Email:ivan.budinski@gmail.com
	Kresimir Mikulic Association for Biological Research - BIOM Email:kresimir.mikulic@googlemail.com
Cyprus	**Michalis Antoniou** Game Fund Service (Ministry of the Interior) Email:mikiantonio1@hotmail.com
Czech Republic	**Frantisek POJER** Agency for Nature Conservation and Landscape Protection of the Czech Republic Email: frantisek.pojer@nature.cz
Denmark	**Carlos Romao** European Environment Agency (EEA) Email: carlos.romao@eea.europa.eu
	Henrik Frost Rasmussen Danish Hunters Association Email:hfr@jaegerne.dk

Country	Participant details
	Trine Bergholtz Danish Hunters´ Association Email:tbe@jaegerne.dk
	Ole Roed Jakobsen Danish Hunters´ Association Email:orj@jaegerne.dk
	Thomas S. Mortensen Danish Forest and Nature agency Email:thsko@sns.dk
	Knud N. Flensted Dansk Ornitologisk Forening - BirdLife Denmark Email: knud.flensted@dof.dk
	Michael Grell DOF BirdLife Denmark Email:michael.grell@dof.dk
	James Williams Aarhus University, NERI Email:hentywilliams@hotmail.com
Finland	**Sauli Härkönen** Hunters' Central Organization Email: sauli.harkonen@riista.fi
	Jari Valkama Finnish Museum of Natural History, University of Helsinki, Finland Email: jari.valkama@helsinki.fi
	Janne PITKÄNEN Ministry of Agriculture and Forestry Email: janne.pitkanen@mmm.fi
	Marko Svensberg Hunters´Central Organisation Email:marko.svensberg@riista.fi
	Margus Ellermaa BirdLife Finland Email:margus.ellermaa@birdlife.fi
France	**Jean-Pierre Arnauduc** Fédération Nationale des Chasseurs Email: jparnauduc@chasseurdefrance.com

Country	Participant details
	Jean-Philippe SIBLET National Museum of Natural History (Paris) - Natural Heritage Service Email: siblet@mnhn.fr
	BOOS Mathieu Research Agency in Applied Ecology Email:direction@naturaconsta.com
	Jacques BAZ Ministry of ecology Email:jacques.baz@developpement-durable.gouv.fr
	Michel METAIS LPO - French League for the Protection of Birds Email:michel.metais@lpo.fr
Germany	**Ralf Puetz** German Hunting Association Email:r.puetz@jagdschutzverband.de
	Martin Schneider-Jacoby EuroNatur Foundation Email : martin.schneider-jacoby@euronatur.org
	Andreas Grauer TU Munich Email:andreas.grauer@wzw.tum.de
	Claus Mayer NABU Email:Claus.Mayr@nabu.de
	Nina Mikander UNEP/AEWA Secretariat Email:nmikander@unep.de
Greece	**Tasos Dimalexis** Nature Conservation Consultants Ltd Email:adimalexis@n2c.gr
	Theodoros Kominos Hellenic Ornithological Society (HOS) / BirdLife Greece Email: tkominos@hotmail.com
	Antonia Galanaki Management Body of the National Park of Oiti Mt Email:agalanaki@hotmail.com
	Vasileios Bontzorlos HELLENIC HUNTERS CONFEDERATION Email:vasilibon@gmail.com

Country	Participant details
	Sotirios Braziotis HELLENIC HUNTERS CONFEDERATION Email:braziotis_sotirios@yahoo.gr
	Evagelos Chatzinikos 4th HUNTING FEDERATION OF CENTRAL GREECE Email:info@dkose.gr
	Nikolaos Papadodimas HELLENIC HUNTERS CONFEDERATION Email:president@ksellas.gr
Hungary	**Márton Horváth** **MME - BirdLife Hungary** Email:horvath.marton@mme.hu
	Zoltan Czirak Ministry of Rural Development Email:zoltan.czirak@vm.gov.hu
Ireland	**Peadar O'Connell** BirdWatch Ireland Email:poconnell@birdwatchireland.ie
Italy	**Anna Maria Bianchi** Ministero agricoltura Email:a.bianchi@politicheagricole.it
	Micali Giuseppe ANUU (ASSOCIATION OF ITALIAN MIGRATORY HUNTERS FOR THE CONSERVATION OF THE NATURAL ENVIRONMENT) Email:anuu@anuu.org
	Bana Giovanni ANUU (ASSOCIATION OF ITALIAN MIGRATORY HUNTERS FOR THE CONSERVATION OF THE NATURA ENVIRONMENT) Email:anuu@anuu.org
	Massimo Marracci AECT (European Association of Traditional Hunting) Email:aect@libero.it
	Paolo Banti Tuscany Region Administration Email:paolo.banti@regione.toscana.it
	Cardone Giuseppe Regione Puglia Email:g.cardone@regione.puglia.it

Country	Participant details
	Giuseppe Leo Regione Puglia Email:g.cardone@regione.puglia.it
	Serafino Nero Regione Calabria Email:s.nero@regcal.it
	Ernesto Forte Regione Calabria Email:e.forte@regcal.it
	Claudio Celada LIPU Italian Leage for the Protection of Birds Email:claudio.celada@lipu.it
	Massimo Maria Madonia Regione Lazio Email:mmadonia@regione.lazio.it
Italy	**Uriano Meconi** Marche Region Italy Email:uriano.meconi@regione.marche.it
	Bruno Petrucci Regione Lazio Email:bpetrucci@regione.lazio.it
	Laura Cucè REGIONE LOMBARDIA Email:laura_cuce@regione.lombardia.it
	Jacopo Tonetti Lombardy Region IREALP Email:jacopotonetti@gmail.com
	Calderola Sonia REGIONE VENETO - UNITA' DI PROGETTO CACCIA E PESCA (Veneto Region - Fish and Game Office) Email:sonia.calderola@regione.veneto.it
Lithuania	**Priit Põllumäe** Confederation of European Forest Owners (CEPF) Email: Trainee2@cepf-eu.org
Luxembourg	**Patric Lorgé** LNVL - BirdLife Luxembourg Email:lnvlp@luxnatur.lu

Country	Participant details
	Sandra Cellina Environment department - Ministry of Sustainable developement and Infrastructures Email:sandra.cellina@mev.etat.lu
	Gilles Biver LNVL (BirdLife Luxembourg) Tel:+352 29 04 04 308 Email:col@luxnatur.lu
Malta	**Nicholas Barbara** BirdLife Malta Email:nicholas.barbara@birdlifemalta.org
Malta	**Francis Albani** Secretary ORNIS Email:francis.albani@gov.mt
	Louis Cilia Government of Malta Email:louiscilia@rocketmail.com
Netherlands	**Wim van der Es** KNJV (Dutch Royal Shooting Association) Email: wimvanderes@knjv.nl
	Colinda Vergeer KNJV (Dutch Royal Shooting Association) Email: colindavergeer@knjv.nl
	Barend van Gemerden Vogelbescherming Nederland / BirdLife Netherlands Email:barend.vangemerden@vogelbescherming.nl
	Floris van Kuijk Vogelbescherming Nederland / BirdLife Netherlands Email:floris.vankuijk@vogelbescherming.nl
	Niels van Strien Vogelbescherming Nederland / birdLife Netherlands Email:niels.vanstrien@vogelbescherming.nl
	Gerard van Dijk Ministry of Agriculture, Nature & Food Quality Email:g.van.dijk@minlnv.nl
	Sander Smolders Ministry of Agriculture, Nature & Food Quality Email:a.a.j.smolders@minlnv.nl

Country	Participant details
Poland	**Lukasz Rejt** General Directorate for Environmental Protection Email:lukasz.rejt@gdos.gov.pl
	Dorota Łukasik General Directorate for Environmental Protection Email:dorota.lukasik@gdos.gov.pl
	Jakub Milczarek General Directorate for Environmental Protection Email:jakub.milczarek@gdos.gov.pl
	Ireneusz Mirowski The Polish Society for the Protection of Birds (OTOP-BirdLife Poland) Email:grassgreen@op.pl
	Izabela Flor OTOP (Polish Society for the Protection of Birds) Email:izabela.flor@otop.org.pl
Romania	**Sandor D. Attila** Babes-Bolyai University Email: adsandor@gmail.com
	Name: **Dan Hulea** ROMANIAN ORNITHOLOGICAL SOCIETY Email:mirela.gavrila@sor.ro
Romania	**Name:Fantana Ciprian** ROMANIAN ORNITHOLOGICAL SOCIETY Email:mirela.gavrila@sor.ro
Slovakia	**Jozef Ridzoň** SOS/BirdLife Slovensko (SOS/BirdLife Slovakia) Email:ridzon@vtaky.sk
	Rudolf Kropil Technical University, Faculty of Forestry, Zvolen Email:kropil@vsld.tuzvo.sk
Sweden	**Anders Grahn** Swedish Association for Hunting and Wildlife Management Email:anders.grahn@jagareforbundet.se
	Niklas Holmqvist Swedish Association for Hunting and Wildlife Management Email:niklas.holmqvist@jagareforbundet.se
Switzerland	**Reto Spaar** Swiss Ornithological Institute

Country	Participant details
UK	**Tim Hoggarth** FACE-UK Email: tim-hoggarth@countryside-alliance.org
	John Swift FACE/The British Association for Shooting & Conservation [BASC] Email: john.swift@basc.org.uk
	Rebecca Lee Wildfowl & Wetlands Trust Email:rebecca.lee@wwt.org.uk
	Peter Cranswick Wildfowl & Wetlands Trust Email:peter.cranswick@wwt.org.uk
	John Swift BASC Email: Amanda.holroyd@basc.org.uk
	Nicola Crockford RSPB Email:nicola.crockford@rspb.org.uk
	Danae Sheehan Royal Society for the Protection of Birds Email:Danae.Sheehan@rspb.org.uk
	David Noble British Trust for Ornithology Email:david.noble@bto.org
	Matthew Parsons Joint Nature Conservation Committee Email:matt.parsons@jncc.gov.uk
	Hugh Laxton Joint Nature Conservation Committee Email:hugh.laxton@jncc.gov.uk

Annex VI European Coordination Group for bird species conservation planning

Draft Terms of Reference

(Informal) European Coordination Group for bird species conservation planning

Aims:

To coordinate the planning and implementation of bird conservation in the African-Eurasian flyway, with a view to facilitating the implementation of priority bird conservation actions by range states, including:

- Prioritisation of the species in need of conservation action plans;
- Funding the development and implementation of action plans;
- Commissioning the development, review and revision of plans;
- Consultation among Member States and Contracting Parties;
- Endorsement of the plans.
- Reporting, monitoring the implementation and revision of approved plans;

Objectives:

1. To coordinate the prioritisation of species that should be the subject of new and revised species action plans and management plans;
2. To agree on lead body to manage the production and implementation of plans;
3. To coordinate the (timetable for) production, consultation and approval of SAPs/SMPs.
4. To coordinate the implementation of SAPs/SMPs eg through Species Working Groups established under the remits mirroring those outlined in 2.

Membership:

Representatives of AEBOP, AEWA, Bern Convention, CMS, European Commission as well as the NGOs BirdLife International, FACE, Wetlands International, Wildfowl & Welands Trust.

Secretary:

Secretarial functions including the organisation of meetings, preparation of documentation and maintaining a record of the decisions shall be provided by BirdLife International. Archiving webspace and document exchange could be provided by any of the member's IT facilities.

Meetings:

At least one per annum, in the most practical way in view of opportunities to meet in person. Intersessionally the group will communicate via e-mail or phone.

Annex VII Changes to the plan format

Proposed modifications to the AEWA Single Species Action Plan format to be used in EU plans

Front Cover

- European Union single/multi-species recovery plan for the *English name /scientific name/* (*also mention for which sub-species or population if relevant, if multi-species plan name the target group of species, habitat or threats subject of the plan)*
- Portrait of species
- Logos

Inside Front cover

- Name of institution that commissioned the plan, together with any other funders supporting the planning process.
- Compiler(s) including contact details
- List of contributors
- Date of adoption (and number of edition if not the first edition)
- Lifespan of plan
- Milestones in the production of the plan
- Name and contact details of official international species working group or other existing species working groups and a message "Please, send any additional information or comments regarding this action plan to this working group, email: xxxxx" or specify other more appropriate contact, giving email address.
- Recommended citation including ISBN.

Geographical scope of the recovery plan

Map based on political map with state boundaries, and shaded to indicate breeding, wintering and passage range states where the action plan should be implemented.

Table 13 Range states for the species, the ones in bold being those in which the Recovery Plan should be implemented

Breeding	**Migration**	**Wintering**
List of countries	*List of countries*	*List of countries*

FOREWORD

If appropriate, *eg* to enhance buy-in and implementation of the plan by all stakeholders, a foreword by one or more relevant officials or key stakeholder representatives could be included.

0 - EXECUTIVE SUMMARY

- Conservation status (Global, Regional and sub-regional (*eg* EU) according to IUCN Red List, BirdLife International and any other key references such as Wetlands International WPE) and reason for it, *eg* moderate decline.
- International legal status
- Population delineation for species with several populations, or where plan concerns just one of several populations (*eg* Icelandic Whooper Swan)
- Brief summary of population size and trend, geographic distribution, habitats and movements
- Principal threats affecting the species or group of species and/or habitat
- Goal of plan
- Objectives and top priority actions

1 - BIOLOGICAL ASSESSMENT

Taxonomy and biogeographic populations

- Notes (where relevant) explaining the taxonomic status of the species /sub-species/biogeographic population dealt with by the action plan.
- In multi-species plans – clear definition of the target taxa and populations considered

Distribution throughout the annual cycle

- Very brief description of distribution and movements, including info on timing and location of breeding, spring migration and moulting etc.
- Country by country data provided in Figure 1 and Table 1.

Habitat requirements

- Brief description of the habitat used by the species.
- If habitat based group plan, give description of the target habitat and its distribution, variation and key functions and management across the range
- Breeding (including nest site) and non breeding habitats used
- Feeding habitats and diet
- Habitat description could include also important habitat requirements for the species, if these are known.

Survival and productivity

- Summary of available information (figures, trends) on generation length, age of first breeding, clutch size, productivity, survival of the age classes (adult, juvenile, chick, nest) and factors affecting it.

Population size and trend

- Ideally for each biogeographic population, current population and historical and recent trends in population size and range (breeding, wintering, migration).

Management issues relevant to the plan

- If the plan is developed for species that are subject of management or sustainable use, briefly describe what are the biological aspects of these issues.

- If the plan is a threat based grou planm this section should define in detail the threat(s) to be addressed and their impact on the target species.

Table 14 Population size and trend by country

Country	Breeding numbers	Quality	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality	Maximum size of migrating or non breeding populations in the last 10 years (or 3 generations)	Quality	Year(s) of the estimate
Country 1								
Overall								

Notes

✓ ***Quality: Good (Observed)*** *= based on reliable or representative quantitative data derived from complete counts or comprehensive measurements.*
Good (Estimated) *= based on reliable or representative quantitative data derived from sampling or interpolation.*
Medium (Estimated) *= based on incomplete quantitative data derived from sampling or interpolation.*
Medium (Inferred) *= based on incomplete or poor quantitative data derived from indirect evidence.*
Poor (Suspected) *= based on no quantitative data, but guesses derived from circumstantial evidence.*

2 - THREATS

General overview

- A paragraph summarizing the most important threats, their impact on the population and the demographic mechanisms through which they operate.

List of critical and important threats

- Follow a descending priority order of threats, starting with the most important.

  Name of threat
  [Description]

  Importance: (critical, high, medium, low, local, unknown)
  The importance of each threat is given for the global population (and/or each biogeographical population dealt with in the action plan).

- A full account of threats at national and biogeographical level should also be given as Annex 1.
- A table to check the coherency of the plan (threats vs. actions) can also be appended (see Annex 1 for example)

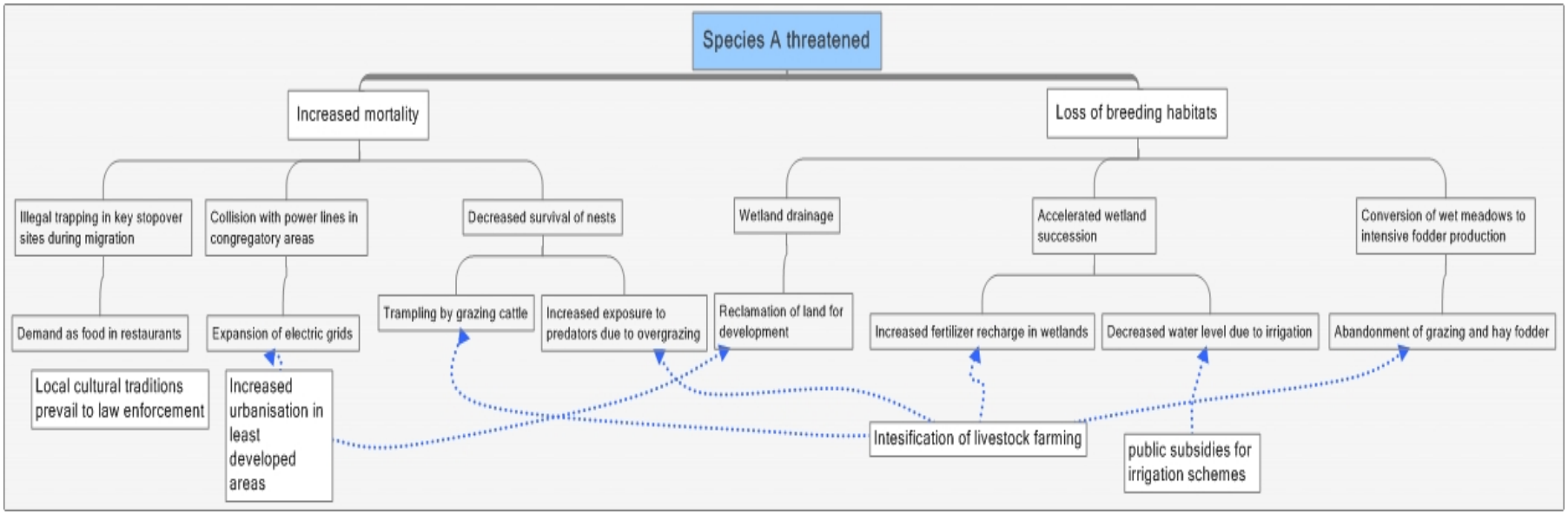
Problem tree

- The problem tree should be included as a figure.
- It should be made clear and focused, covering the critical and important threats, not all threats.
- Threats that affect distinct biogeographical populations differently should be flagged up in the problem tree accordingly, showing to which biogeographic population they refer.
- An example of a problem tree is given as Figure 2.

Population Viability Analysis

- A summary paragraph of the main findings of PVA, if available.
- If possible, a PVA should be developed for the species/population and used during SSAP preparation process to assess the importance of threats according to their effects on the population.
- It is recommended to use the simplest PVA sufficient for the problem in question.
- PVA can also highlight knowledge gaps about the population parameters or species' biology.

Figure 2 Problem tree (example)



Level 1: Mechanism through which the threats operate

Level 2: Specific threats

Level 3: Immediate causes of threats

Level 4: Root causes of threats

3 - POLICIES AND LEGISLATION RELEVANT FOR MANAGEMENT

International conservation and legal status of the species

- Global Red List Status and criteria fulfilled
- African-Eurasian Migratory Water bird Agreement (column and criteria)
- Bonn Convention Appendix
- Convention on International Trade in Endangered Species Appendix
- Other conventions / agreements or regional prioritisation should be used as appropriate (Bern Convention Appendix, Barcelona Convention, etc)
- Regional Red List Statuses[1]

EU Policies that have direct or indirect impact on the species

- EU Birds Directive Annex
- E.g. Common Agricultural Policy, which programmes and measures
- Transport infrastructure, energy, cohesion policym etc

National policies, legislation and ongoing activities

- National nature conservation and other related legislation
- Sectoral policies and programmes (*eg* Rural Development Plans, Forestry Development Plans, etc)
- Recent or current conservation projects aimed at the species

Regulated use and management of the species

- If the species is huntable, the applicable regulations including open seasons and quantities should be provided by country
- If the species/population is managed the applicable regulations and management objectives should be given by country.

4 - FRAMEWORK FOR ACTION

Goal

- This is the overall long-term goal to which the plan will contribute, but not achieve on its own. It is only one statement. In most cases, one of the two suggested goals could be used:
  1) Remove the species/population from the IUCN Red List/AEWA Column A, Category 1, 2 or 3 (for Red List species)
  2) Restore species to Favourable Conservation Status (for non Red List species)

[1] *eg* European and EU status according to BirdLife International

Objectives

Objective 1

Objective 2

[usually one to three objectives]

Recovery strategy

- Key facts and assumptions made in selecting the objectives;
- A brief analysis of the strategic options considered and justification of the choice made;
- Rationale for the proposed recovery approach.

Recovery criteria

- The values that the achieved objective should have reached as a result of successful implementation, and that should lead to recovery.
- Demographic criteria
- Threat reduction criteria

Results

- Results to be numbered following the objectives.

Result 1.1

Result 1.2

[usually three to six results]

Actions

- Actions to be numbered following the results.

Action 1.1.1

Action 1.2.1

Action 1.2.2

Actions should be prioritized as:

- Essential
- High
- Medium
- Low

Time scales should be attached to each Action using the following scale:

- Immediate: completed within the next year
- Short: completed within the next 3 years
- Medium: completed within the next 5 years
- Long: completed within the next 10 years

- Ongoing: currently being implemented and should continue
- Completed: completed during preparation of the SSAP

- Table 3 presents the results under each objective, followed by the actions grouped by results. Under each action, a list of countries (using ISO codes for short if many) where its implementation is relevant.
- Against each action, the organisations responsible for its implementation are also listed, as concretely as possible.
- Grouping of similar actions into packages according to their relevance to particular stakeholders.
- Indicative estimation of the magnitude of the expected cost (1000, 10 000 or <100,000€) and their recurrence (one off, periodic, ongoing) can be made.

Table 15 *Example actions corresponding to the results and ranked according to their importance, following from the problem tree.*

Objective: Negative population trend reversed to positive.					
Result	***Action***	***Indicative budget and type of cost***	***Priority***	***Time scale***	***Organisations responsible***
Mortality of chicks in breeding areas reduced by 20%	• Actions to reduce clutch and chick mortality clarified and widely advertised to farmers / land-users, firstly in protected areas Applicable to: **AU, HU, CZ, SK**	(1000, 10 000 or <100,000€) Annual Recurring One-off	• High	• Short	Research institutes and governmental agencies developing agri-environmental measures
	• Introduce system to manage grazing pressure in protected areas within tolerance limits of species (1,5 LU/ha) Applicable to: **AU, HU, CZ, SK**		• Medium	• Medium	Protected area managers
	• Favourable habitat management in breeding areas supported through agri-environmental schemes. Applicable to: **All countries with breeding populations**		• Low	• Medium	Ministries of agriculture and environment
	• Breeding success monitored annually Applicable to: **All countries with breeding populations**	•	• High	• Short, then ongoing	NGOs and research institutes, protected areas managers

5 - REFERENCES

List of the most relevant literature used for the preparation of the action plan.

ANNEX 1

Threats importance at population/group of countries level

Type of threat	Population 1	Population 2	Population X
1. Habitat loss/degradation (human induced)	*Threat score*	*Threat score*	*Threat score*
1.1.			
1.2.			
1.3. …			
2. Direct mortality			
2.1.			
2.2. …			

Table to check the coherence of the recovery plan (threat based approach)

	Threat 1	***Threat 2***	***Threat N***
Action 1	***x***		
Action 2		***x***	
Action N			***x***

Notes

- ✓ *The description of threats should reflect the actual understanding of the situation with the species, according to the latest available knowledge and the workshop participants' best judgement. It is not necessary to follow a formal threat classification system. The logical problem analysis and cause-effect relationships among the main threats are the important aspects to focus the plan on.*
- ✓ *Threats are not hierarchical, but clustered according to type of effect.*
- ✓ *Threat score: Critical, High, Medium, Low, Local, Unknown.*
- ✓ *All important threats should be covered by actions.*

ANNEX 2

- ✓ *Data for this table could be obtained from the BirdLife International World Bird database and checked to be up to date.*
- ✓ *It should be indicated when the database was accessed {date}.*

Important Bird Areas for the species and their status

Country	International and national name of IBA	Area (ha)	Location		Population		Year	Season	Accuracy	Protected areas name	Type of protected area or international designation	Protection status
			Lat	Long	Min	Max						
Country 1												

Notes

- ✓ ***Population Min - Max.*** *For breeding ('season' column), figures are usually given in pairs; for other seasons, figures are given in individuals*
- ✓ ***Season:*** *Breeding, Migration, Non breeding visitor (wintering)*
- ✓ ***Accuracy: Good (Observed)*** *= based on reliable or representative quantitative data derived from complete counts or comprehensive measurements.*
  Good (Estimated) *= based on reliable or representative quantitative data derived from sampling or interpolation.*
  Medium (Estimated) *= based on incomplete quantitative data derived from sampling or interpolation.*
  Medium (Inferred) *= based on incomplete or poor quantitative data derived from indirect evidence.*
  Poor (Suspected) *= based on no quantitative data, but guesses derived from circumstantial evidence.*
- ✓ ***Protected Area name =*** *Nature Reserve, National Park, Ramsar site, etc.*
- ✓ **Type of protected area**: IUCN Category
- ✓ ***Protection status****: level of overlap between the IBA and a National protected area or International designation.*

ANNEX 3

✓ *All tables in this Annex to be filled in advance of workshop by questionnaire*

National legal status

Country	Legal protection	For game species, give opening/closing dates of hunting season
Country 1		

Recent conservation measures

Country	Is there a national action plan for the species?	Is there a national {*Species*} project / working group?
Country 1		*Provide with links only if they exist*

Ongoing monitoring schemes for the species

Country	Is there a national survey / monitoring programme?	Is there a monitoring programme in protected areas?
Country 1		

Overview of the coverage of the species in networks of sites with legal protection status

Country	Percentage of national population included in IBAs	Percentage of population included in Ramsar sites	Percentage of population included in SPAs[1]	Percentage of population included in protected areas under national law
Country 1				

✓ *This table could be generated automatically by BirdLife WBDB on request. SSAP compilers may use classes instead of real figures: 0-10% (almost none), 10-50% (less than half), 50-90% (more than half), 90-100% (all)*

[1] This is relevant only for European Union member states. Any other regional (legal) protection should be mentioned in next column.

ANNEX 4

Tables for monitoring the implementation of the plan to be completed on an ongoing basis (e.g. by using a score system (0=action not applicable to 4=full implementation achieved)

Action\ M. State	MS1	MS2	MS3	MS4	MS5	MS6	MS7	...	MSn	Overall progress
1	0	0	...							
2	1	4								
3	2	3								
4	3	2								
5	4	1								
6	3	1								
7	2	2								
...	0	3								
N	0	4								
Overall progress										
Last updated on:	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date

Annex VIII Final Report Task 1.4

Scientific and technical assistance supporting species protection

under the Birds Directive

Reference: ENV.B.2./SER/2009/0076r

FINAL REPORT

Proposals for a methodology for the regular updating of the Key Concepts of Article 7(4) of the Birds Directive

Prepared by

FACE

and

BirdLife International

7 January 2012

Proposals for a methodology for the regular updating of the Key Concepts of Article 7(4) of the Birds Directive

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1 Introduction

1.1 Background

Article 7(4) of the Birds Directive states that Member States "*shall see in particular that the species to which hunting laws apply are not hunted during the rearing season nor during the various stages of reproduction. In the case of migratory species, they shall see in particular that the species to which hunting regulations apply are not hunted during their period of reproduction or during their return to their rearing grounds. Member States shall send the Commission all relevant information on the practical application of their hunting regulations.*"

In 1994 a Court of Justice ruling C-435/92[43] concluded that complete protection of huntable species must be guaranteed during these periods. This led to the production the Key Concept document initiated by the ORNIS Committee in 1998 in recognition of the need to have a clearer interpretation of Article 7(4) and how to apply it. The document contains the dates (in decades – 10 day periods) of the reproductive period and for migratory birds the pre-nuptial migration for each Annex II species by Member State. The resulting document (Key Concepts of Article 7(4) of Directive 79/409/EEC) completed in 2001 covered 15 Member States.

With the accession of 12 more Members States and the accumulation of additional data there was a need to update the Key Concepts document. This process was started by the European Commission at the beginning of 2008, followed by a second consultation open to stakeholders in October 2008. This second consultation was deemed necessary due to gaps in data, and to provide the opportunity for Member States to verify the data given for their country. The latest version of the document was completed in 2009 and made available on the DG Environment website early 2010[44].

However, the European Commission acknowledges that the 2009 version of the Key Concepts document can be reviewed on a regular basis, to take into account emerging knowledge from modern research and monitoring methods and potentially the effects of climate change on phenology.

[43] Judgment of the Court of 19 Jan. 1994. Association pour la Protection des Animaux Sauvages and others v Préfet de Maine-et-Loire and Préfet de Loire-Atlantique (Eur-Lex)

[44] http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/key_concepts_en.htm

1.2 Aim

The aim of this report is to propose a new methodology for the compilation and periodic review of the Key Concept document, based on a clear and transparent, peer-review type of process, in order to assure the scientific relevance, practical applicability and stakeholder confidence in this important document.

For the new methodology to be effective, it would be necessary to have good cooperation at national level between Members State authorities, research institutions, monitoring networks and other relevant bodies. Similarly it is necessary to set quality standards for data used in the Key Concepts and criteria for the interpretation of varying information. This approach should lead to a document which is as consistent as possible in terms of data availability and quality of references across the EU.

A new process for the updating and approval of the Key-concept document should:

- Identify the sources of best available data at national level, or in the absence of make use of international atlases or studies
- Achieve consensus among national institutions and stakeholders
- Follow a structured reporting format
- Be transparent and allow data and data quality to be peer reviewed
- Evolve with new knowledge of bird reproduction and migration phenology
- Include an element of communication and awareness raising
- Provide suggestions to facilitate the use of the document

1.3 Tasks implemented to produce this report

The purpose of this report is to identify opportunities for improving the Key Concepts document and propose a methodology for updating and reviewing the information it contains. In order to achieve high quality and scientific credibility of the document, the proposed methodology sets requirements to the data sources and references to be used and introduces a reporting format for future submissions by the Member States and stakeholders. The document examines the criteria used for identifying the pre-nuptial and reproductive period, and reviews some recent research on this subject. Finally a potential timeframe is given for updating the document.

To draw up this report, the Consultant has implemented the following steps:

Step 1 Conduct a SWOT analysis based on institutional knowledge of the Key Concepts document from its conception until present day. This was presented at the International Conference: Bird Conservation in the EU: planning for recovery action and sustainable use on 23-24 November 2010 in Brussels (see Annex VIII-4).

Step 2 Identify similar processes for updating and verifying data, (e.g. academic peer review, EU reporting obligations, BirdLife International population assessment process).

Step 3 Examine the necessity to review the methodology and criteria sections of Key Concepts (cf. introduction of this document), given the advances in knowledge of reproduction biology and migration phenology.

Step 4 In light of the outcome of new reporting format for the Birds Directive finalised mid 2011, examine the potential timeframe for updating the Key-Concepts Document. Account will be taken of concerns of Member States of the increased reporting burdens and the quantity of data required for the document.

Step 5 Consult stakeholders and Member States representatives on monitoring of bird biology and migrations.

Step 6 Examine possibilities for assessing data quality and coherence to increase the transparency of the document and to assist those using the document to interpret the data.

Step 7 Explore options to improve data sources & motivate better coverage.

Step 8 Propose a process for a transparent Member States and stakeholder consultation with clear rules and criteria for the quality of data which can be used in the regular up-date of the document

Step 9 Propose a clearly defined process of approval of the Key–concept document with clear time schedule

Step 10 Propose a process for the update and approval of the Key-concept document with the Commission, Member States and stakeholders

2 Processes for updating and verifying data

To increase confidence in the Key Concepts document and guarantee that the data used to update it is scientifically robust and verifiable, a new process is required. Such a process should ensure that both the 'best available data' is used and that references are sufficiently well documented to allow for an audit trail. This ideal has partly been achieved in the current document, but there is scope for improving transparency.

2.1 The need for peer review

It is generally agreed that the purpose of academic literature is to disseminate current knowledge, archive it, ensure quality control of published information and assign credit to authors. The purpose of peer review is to fulfil these four functions, but especially that of quality control (Rowland 2007).

Simply put peer review is a system for assessing the quality of research before it is published. It requires that other scientific experts in the same domain check research papers for validity, significance and originality – and for clarity (Sense about Science 2005).

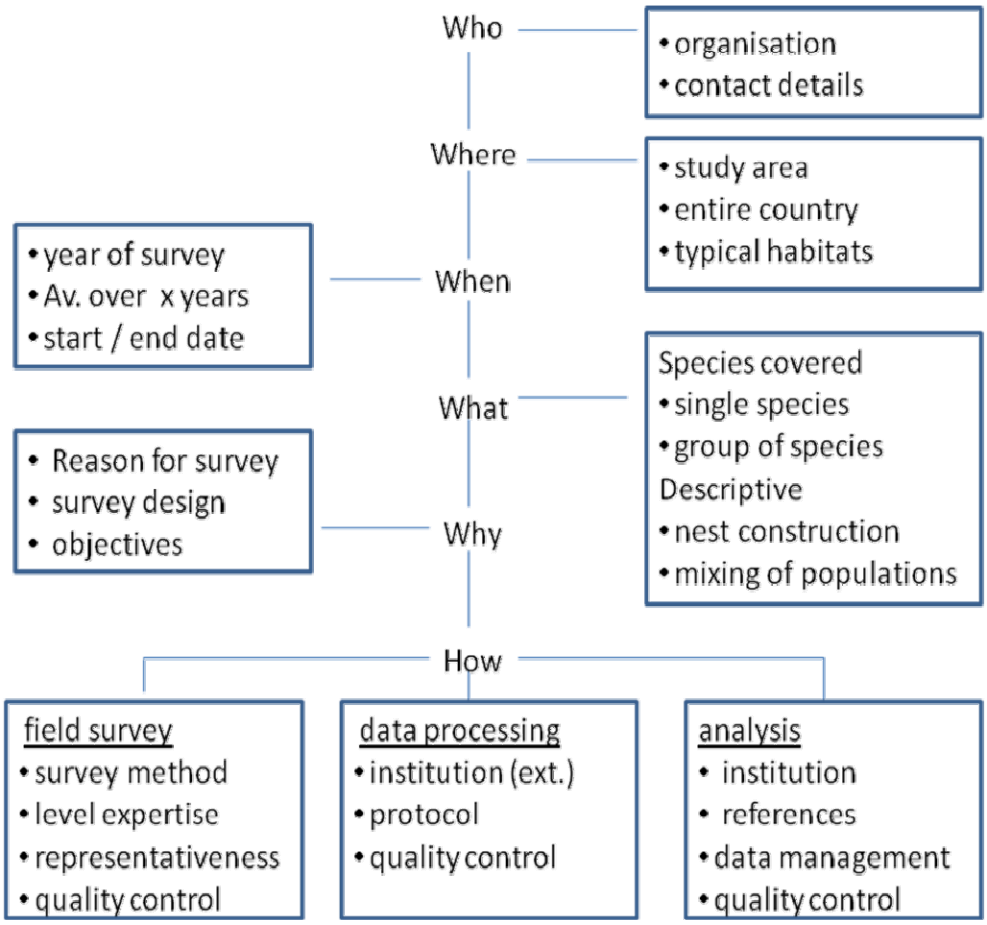
For updating the Key Concepts document it is preferable if data comes from published sources which have undergone a peer review, such is the case for scientific papers. However, not all aspects of bird biology are equally well covered by scientific publications, and not all publications are equally accessible. There will be cases when data needs to be sought from other sources e.g. observation databases, bird monitoring schemes or technical reports. To deal with the problem of language and access to local knowledge, it is advisable that such information is sources and reviewed as well at national level. In such circumstances it may be considered that a panel of national experts is established, where possible making use of existing structures, such as those currently being developed for Article 12 reporting.

2.2 Assessing data quality

The quality of data used is crucial for the Key Concepts Document, both for the wise governance of bird hunting in the EU and for the reputation of the document itself.

Data quality and error in data are often neglected issues with environmental databases, modelling systems, GIS, decision support systems, etc. Too often, data are used uncritically without consideration of the error contained within, and this can lead to erroneous results, misleading information, unwise environmental decisions and increased costs. (Chapman 2005)

Fig. 1 - Aspects to consider when assessing data quality for the Key Concepts document



Categories for Data Quality

The categories described in Birds in Europe (BirdLife International 2004) for data quality would be appropriate, and will also be used in the Birds Directive Article 12 reporting exercise.

- **good** – reliable quantitative data available (e.g. atlas, survey or monitoring data) for the whole country[45] and recent years
- **moderate** – generally well known, but only poor, outdated or incomplete quantitative data available
- **poor** – poorly known, with no quantitative data available

In the guidelines for the Article 12 reporting further indicators are given on categorising data quality, taken from Heath and Evans (2000):

- **good** = reliable – accurate to within 10%
- **moderate** = incomplete – accurate to within 50%
- **poor** – definitely not accurate to within 50%

A **Draft check list** of criteria for assessing reports and information sources relevant to the Key Concepts is given in Annex VIII-1 of this report. This is aimed at providing guidance to Member State authorities when reporting to the European Commission. It is advisable that this check list is initially tested by the Commission with some Member States, and then adapted if necessary (similar to the process of Art. 12 reporting process).

2.3 Proposals for reviewing and submitting data:

Data collation and approval at national level

For the regular update of the Key Concepts it is preferable if consensus can be reached at national level before the data is sent to the European Commission. Such an approach is currently being developed under the new Article 12 reporting process, where national committees or panels involving different research bodies are being structured. One example of such collaboration is the Avian Population Estimates Panel (APEP) in the UK which groups the JNCC, BTO, GWCT, RSPB and WWT, all of whom produce population estimates for different species. One drawback is that the European Commission cannot impose the creation of such bodies, but criteria could be suggested for the composition of such panels or committees (data providers, data users). National Hunting organisation should be involved in such panels, in the interest of transparency and to assist later implementation of hunting seasons. For certain species they may also be the providers of data.

In the circumstance where consensus over national data cannot be reached, consultation with the European Commission and EU Level stakeholders may be necessary to resolve issues.

[45] For large countries covering several biogeographic regions, regional data may offer a more appropriate level of precision for setting hunting seasons

Collation of the approved data by the European Commission

To ensure that information sent by Member States is standardised a reporting format should be developed, preferably with an associated online reporting tool to improve efficiency of processing and complying the revised document. Once finalised a searchable database would facilitate consultation of the document.

Once a provisional draft has been produced an EU level review should take place to validate data and check for any inconsistencies in the dates provided or references used. The ORNIS SWG or other experts groups could be used for such a role. Dividing the Annex II species into sub-groups (ducks, geese, grouse, partridge, waders, gulls, pigeons and doves, thrushes, crows) may help to break down the workload and benefit from specialist interest.

Table 1. Process for reviewing and submitting data
The table below indentifies the successive steps necessary for reviewing and updating the Key Concepts document, indicating whether the actions are at EU or national level.

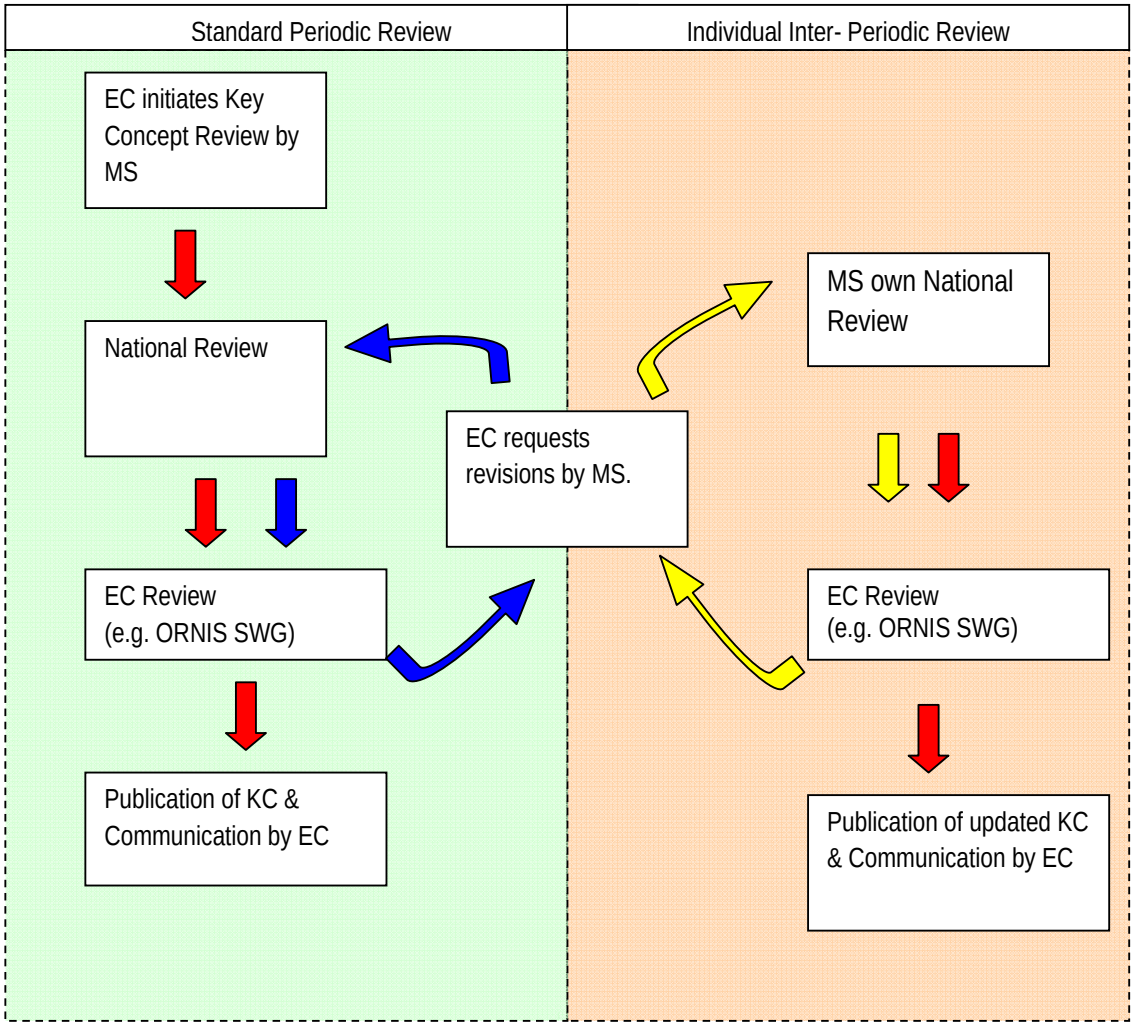
Action	**Lead body**	**Stakeholder(s)**	**Result**
EU level			
1. Initiate consultation on Key Concepts document with Member States			
1.1. Priority for review, potential timeframe, their use of the KC document and system in place for fixing open seasons for hunting etc.	DG Environment	FACE, BirdLife International	Ensure that future process addresses priorities and receives adequate preparation / work planning
1.2 Plans for governance structure, ToR for EU level working groups	DG Environment	FACE, BirdLife International	
1.3. Stock-take of Article 12 process and identifies elements for use in review of KC document	DG Environment	FACE, BirdLife International	
Action	**Lead body**	**Stakeholder(s)**	**Result**
EU level			
1. Initiate consultation on Key Concepts document with Member States (cont.)			
1.4 Identify potential coordinators and experts for different species or other *Ad hoc* groups.	DG Environment	FACE, BirdLife International	Benefiting where possible making use of experts indentified under the Article 12 process
2. Reporting format			
2.1 Develop reporting format for Member	DG Environment	*Ad hoc* expert group (including BirdLife	Reporting format captures elements

States		International and FACE)	from step 1 (above)
2.2. Develop reporting tool	DG Environment + IT expertise	*Ad hoc* expert group (including BirdLife International and FACE)	Efficient compilation and standardised national reports
2.3. Approval of reporting format and IT tool	DG Environment		
National level			
3. Initiate consultation on open seasons	Relevant Ministry dept. - responsible for hunting regulation	Avian panel, National Hunters Association, BirdLife Partner, other relevant NGOs/ specialist groups	Transparency, collaboration in early stage of process
4. Identify national focal points and experts and appoint national coordinators (using panels from Article 12 process where possible)	Relevant Ministry dept. - involved in Article 12 reporting process	As above	Benefit for existing structures and lessons learned from a similar task
5. National coordinators collate data in cooperation with focal points	Relevant Ministry dept	As above	
Action	**Lead body**	**Stakeholder(s)**	**Result**
National level (cont.)			
6. National review of data; validation, resolve inconstancies	Relevant Ministry dept	As above	Improved data quality and resolution of issues at national level
7. Compile and submit reports to EC	Relevant Ministry dept		
EU Level			
8. EC Review	DG Environment + Ornis SWG	As above	Identify any inconsistencies
9. EC requests to Member States for clarification or revision of information sent	DG Environment		Improved overall coherence of national data
10. Publication of Key Concepts document	DG Environment		Up to date guidance for setting open seasons

Possible process for inter-periodic review of Key Concepts document

There may be circumstances where Member States conduct reviews of data outside the standard cycle for updating the Key Concepts document for the setting of national or regional open seasons. There should be scope for this to be incorporated into the review process. Equally on an *ad hoc* basis the European Commission may request revisions for certain countries (for certain species) to resolve inconsistencies, or to cater for EU accession countries. Figure 2 below gives a comparison of both standard periodic review and inter periodic review processes.

Fig. 2 – Review processes for Key Concepts document



Proposals for reporting references

In Annex VIII-2 of this report there is a two part form for Member States to report references to the European Commission. Providing concise descriptive information on the references is useful when information is published in national language only and helpful for review purposes. This will allow assessment of information at EU level by expert group (e.g. Ad Hoc group, Ornis SWG) and stakeholders. The first part for listing the references used for each species with space for supplementary information, and the second part to give details of each reference used including; study area, species covered, years of survey and methods used. The reason for having two parts being that one reference could cover several species (*e.g.* bird atlases).

3 Review of the methodology and criteria sections of the Keys Concepts document

In addition to updating the data from the Key Concepts document it may also be necessary to review the introductory section of the document which provides guidance, and criteria to identify the beginning and end of the period of reproduction and return to breeding areas.

- '*Furthermore, evolution on the knowledge of reproduction biology and ecology and migration's phenology may also require future updating.'* Section 2.3 Key Concepts of Article 7(4)

Return to the breeding areas:

Current situation

The return to the breeding areas also referred to as 'pre-nuptial migration' or 'spring migration' can rarely be identified from isolated observations, as is recognised in the introductory section of the Key Concepts document:

In general, the beginning of the return migration can only be estimated by comparison of data from many different regions of the European Union, analysis of ring recoveries and consideration of arrival dates in the breeding areas.

While it is apparent when migratory birds first arrive on their breeding grounds, it is difficult to identifying the dates when they depart from wintering areas. Some of the reasons for this are described below:

- All individuals of a species within a same region do not end their wintering period at the same time, both due to individual differences and due mixing of different populations of the same species.
- Migratory and sedentary birds of the same species coexist on the same wintering grounds.
- The fact that birds leave a wintering area does not necessarily mean that they start their return migration. They can make movements due to weather or other ecological conditions.

In the 1994 court ruling of case (C-435/92) states that the method consisting in fixing the closing date for hunting by reference to the period during which migratory activity reaches its highest level cannot be considered to be compatible with Article 7(4). Again the ruling of case (C-38/99) states that a method whose object or effect is to allow a certain percentage of the birds of a specific species to escape complete protection during the period of pre-nuptial migration does not comply with Article 7(4).

In the Key Concepts document it is specified that information defining the timing of pre-nuptial migration is based on statistics relating to populations rather than individual birds, with the general principle that extreme, outlying and erratic data have been excluded due to their unpredictable nature and falling outside normal patterns of variation between and within years.

The document also gives principles for the presentation of data, which deal with the issue of variations at a spatial scale (e.g. large countries covering several biogeographic regions) and temporal scale (annual variations).

- Where there is a range in timing of pre-nuptial migration the data used relate to the earliest periods in each of the Member States concerned. Although it should be noted that fixing of closing dates which vary between the different parts of the territory, to accommodate variation in prenuptial migration of a Member State is compatible with the directive, on the condition that complete protection is assured.
- Where significant annual variation occurs on a regular basis, data from the earliest periods have always been taken;
- Where different populations of the same species migrate through a country at different times, information relating to the earliest migrating population is used. In some cases, where different populations (i.e. different subspecies or different flyways) are clearly distinguishable in the field their correspondent timings where given.

These principles which reflect the Court of Justice ruling C-435/92 provide adequate protection for migratory birds during pre-nuptial migration and give clear guidance to Member States. Notwithstanding more guidance is required on analyzing monitoring data to provide accurate dates of migratory movements. There are however certain species with prolonged (pre-nuptial and) reproductive periods for which such level of protection is less appropriate (e.g. *Anas platyrhynchos* and *Columba palumbus*). This issue is dealt with in detail in the Guide to Stainable Hunting under the Birds Directive[46].

Developments in the monitoring of bird migration

The issue of climate change and its effect on bird phenology has given rise to new research, including development of methodologies for the analysis of data from monitoring programmes at bird observatories. "*While the fields of research on bird migration and phenology are old and mature, the field of climate change impacts on bird migration is young and in a phase of phenomenological exploration and dissection. There are great challenges in merging phenomenological and mechanistic approaches, but we think there will also be great rewards, not least in terms of better separation between 'true' phenology and patterns imposed by the observation process*" Knudsen *et al.* (2007).

Statistical analysis

Bird migration phenology has traditionally been analysed by rather simplified methods to provide central peaks in migration with spread described between, low (5%) and high (95%) quantities (Knudsen *et al.* 2007). New approaches in modelling migration phenology may offer more accurate results which take into account sampling problems such as incomplete observations, observation error, and erratic data. The methods described by Knudsen *et al.* (2007) focus on techniques for smoothing of data to capture patterns in observed data to get closer to true underlying seasonal distribution and importantly detect changes in phenology.

Such approaches could also be applied to analysis of data stemming from online observation databases which make use of 'citizen science'. With the availability of new technology it is easier than ever for ornithologists and those with a keen interest in birds to upload observations onto central databases providing timely and valuable information. However such data requires analysis and validation as it may be used in some circumstances as a basis for changes to national legislation on hunting seasons. The need for such validation is addressed by some observation databases (e.g.

[46] http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/docs/hunting_guide_en.pdf

http://www.bto.org/research-data-services/data-services/data-quality) and efforts such as these should be encouraged.

Radar Ornithology

Since the 1960's radar has been used to study bird migration. It has the advantage of being able to record nocturnal migrants, high altitude flights and can be used in poor weather conditions which would otherwise hinder visual observation. While radar has remained largely unchanged over the years, advances have been made in recording equipment (Bruderer 1999). The Swiss Ornithological Institute has been one of the leaders in this development and a review of procedures on how bird migration can be quantified through analysis of radar data has been published by Schmaljohann (2008). One disadvantage is that it doesn't allow species identification, but when used together with complementary methods such as nocturnal bioacoustics recordings and visual census in the same area, identification at species group can be made e.g. *Anatidae* (Beroud *et al.* 2011). More efforts should be made to incorporate data from a range of different monitoring methods such as these.

3.1 Reproductive period

Current situation

As described in the Key Concepts document, although the 1994 court ruling of case (C-435/92) dealt only with the fixing of closing dates for migratory species, a matter relating to the start of pre-nuptial migration, it is also relevant to the fixing of opening dates, a matter relating to the end of the reproductive period.

Just as for the return to breeding areas, there are difficulties in identifying the end of the period of reproduction, mainly due to the difficulties in field observations. The general criteria used in the Key Concepts document to identify the end of the reproductive period is 'full flight of young birds', meaning that young birds are capable of sustained, continuous flight to a similar capacity as adult birds and corresponds to the 'independence of young birds'. For some groups of birds such as Corvidae, the full flight occurs before 'independence of young birds'. It is further stated that young birds are independent when the loss of parental care and/or feeding does not significantly lower survival prospects of young.

Developments in the knowledge of reproduction biology

As is the case where full flight/independence of young birds is difficult to establish in the field, a mention is made to the corresponding number of decades counted from the end of hatching period, based on knowledge of breeding biology (e.g. for most Phasianidae, independence of young c. 6 decades after hatching). Combining field observations with physiological studies may also contribute to accurately identifying the end of the period of reproduction for other Annex II species.

In a study of Mallard *Anas platyrhynchos* under controlled conditions Boos *et al.* (2007) demonstrated that parental care behaviour gradually decreased after hatching and ended after 6 weeks, this also coincided with a drop in circulating prolactin levels in Mallard hens rearing ducklings

(prolactin being a hormone generally related to parental care behaviour). This confirms earlier studies on radio tagged Mallard and Black Ducks *Anas rubripes* that parental attention is greatest for the first 2 weeks after hatching and ends after 6 to 7 weeks, c. 2 to 3 weeks before the date of full flight (Talent *et al.* 1983, Afton & Paulus 1992). The same author also examined offspring survival during different post-hatching age periods with free-ranging, radio-marked Mallards in both deserted and non-deserted broods. Results showed that survival probability of deserted ducklings was 23% lower in the 15 to 30 day age period, but similar for deserted and non-deserted ducklings thereafter (Boos *et al.* 2007). This demonstrates that survival no longer depends on parental care after the first month. Whereas by default the full flight of young birds is criteria for defining independence of young for ducks (and other nidifugous species), the findings of these studies indicate that it may be necessary to review these criteria for certain species of *Anatidae*.

3.2 Discussion

Given the wide scope of the Key Concepts document it is difficult to provide a single set of criteria appropriate for all species in Annex II, but where applicable Member States should adopt the same criteria for the same species. As has been demonstrated with criteria for defining end of reproductive periods for certain ducks, there is not full agreement within the scientific community on the stage when independence of young occurs. The Key Concepts document provides clear guidance on the interpretation of the Court of Justice of Article 7(4), which is supplemented by the Guide to Sustainable Hunting Under the Birds Directive (EC, 2008), but final decisions on fixing open seasons for hunting may benefit from panels or committees at Member State, regional level and/or biogeographical region as appropriate. Such processes should be guided by such scientific considerations, be risk assessed, and take account of the population status of the species concerned. Proposals for modifications of hunting practices in related management or recovery plans should also to be considered. Despite the complexity of the issue the methodology and criteria section of the Key Concepts document should be updated in light of new research just as the main body of the document to ensure it reflects advances in knowledge. Table 2 outlines a step by step procedure for such a review.

Table 2. Procedure for reviewing of methodology and criteria section (successive steps)

Action	Lead body	Stakeholder(s)	Result
EU Level			
1.Consultation with Member States on review methodology and criteria section of the Key Concepts document.	DG Environment + Ornis Committee	BirdLife International, FACE, other relevant NGOs/ specialist groups	Reach consensus on need to revise section and if so which parts
2. Conduct scoping report on state of art of bird phenology and reproductive biology relevant to the Key Concepts document	DG Environment + independent consultant	As above (for terms of reference of scoping report only)	Independent view on issue. In particular on criteria to be used for defining the reproduction/pre-nuptial migration

			periods
3. Consultation on outcomes of above actions	DG Environment + Ornis Committee	As above	Balance of opinion on best approach
4. Drafting of proposals	DG Environment + Ornis SWG	As above	Consensus on content
5. Revision of methodology and criteria section as required	DG Environment + Ornis SWG	As above	Methodology and criteria for the Key Concepts document which is in line with advances in knowledge

3.3 Recommendations

Short terms – for next review process

- More exhaustive guidance on data collection standards and methods.
- Greater emphasis on the use of specific studies at species level to establish dates for pre-nuptial migration and reproductive periods, to complement observation data at national or regional level. This may also help to improve overall coherence of national data.
- Widen the range of data sources used to define dates for pre-nuptial migration and reproductive periods at Member State level, with the aim of achieving greater precision.
- Identify gaps in knowledge either at Member States or species level.

Long term

- Develop guidance to harmonise the treatment of data stemming from different monitoring methods. Annex VIII-3 of this report gives a comparative overview of monitoring methods.
- Research on reproductive biology and ecology and migration to complement field observations.
- Greater use of international ringing data and observatories, with consideration that for some species arrival on breeding grounds is easier to monitor than departure from wintering grounds. In this respect international collaboration could be useful.
- Support initiatives to improve knowledge on bird migration at European level, including the timing of movements and the connectivity between key sites for migratory birds.

4 Potential timeframe for updating the Key-Concepts Document

4.1 Introduction

There are two issues to be considered when setting a timeframe for updating the Key Concepts document. Firstly to examine the priority to revise the current document (2009) and secondly to ensure that any such process does not clash with other reporting obligations.

4.2 Proposals:

Given the concerns of growing reporting burdens by Member States it would be unwise to link the updating of the Key Concepts document with the new process under Article 12 of the Birds Directive. This new process will replace the current practice of 3-yearly textual reports with a new format requiring far more detailed information on populations and trends, with the first reports be submitted at the end of 2013. However once finalised in 2014 the lessons learnt in the process and the establishment of national expert panels could greatly facilitate the revision the Key Concepts document. The start of the new process for reviewing and updating the Key Concepts document should begin in 2015 and be completed before the lead up to the following Article 12 reports due in 2019. A potential timeline is detailed below in table 3.

As a first step before entering into a full review of the Key Concepts document would be to consult Member States on the extent to which they use the existing document when fixing open seasons for hunting, which in some cases are set annually. It would also be valuable to ascertain whether overlaps between open season, pre-nuptial migration and reproductive period are considered as problematic or otherwise. Member States should also be consulted on the suitable timeframe for updating the document and cycle of reviewing. One option would be every 6 years to follow each consecutive report under Article 12.

Potential questions:

- Is the Key Concepts document used for setting bird hunting seasons in your country and how are decisions reached?
- If the Key Concepts document is not used what process is in place?
- Once the Key Concepts is revised what should be the frequency for 'regular review and updating' as stated in the document?
- Should complete reviews be undertaken periodically every 'x' number of years or only gaps and poor quality data be replaced?
- How to proceed in case of further EU accession? It would be desirable is new Member States can benefit from Key Concepts document as soon as they join the EU.

Table 3. Potential timeline for revision of Key Concepts Document

Steps		Year	2014				2015				2016			
		Quarter	1	2	3	4	1	2	3	4	1	2	3	4
Article 12 Process														
		EC analyses of official data from Member States												
		EC launches technical report summarising results at EU level and assessing EU level status and trends of birds												
Key Concept review process														
Tables														
1	**2**													
1.1		EC consults Member States on; priority for review, potential timeframe, their use of the KC document and system in place for fixing open seasons for hunting etc.												
1.2		Dependant on outcome of above consultation EC plans governance structure, ToR for EU level working groups (Ad hoc expert group, Ornis SWG)												
1.3		EC and stakeholders produce stock-take of Article 12 process and identifies elements for use in review of KC document												
1.4		EC and stakeholders identify potential coordinators and experts for different species groups.												
	1-5	EC with expert group review methodology and criteria section of KC document												
2.1		EC with expert group develops reporting format for Member States												
2.2		EC develops online reporting tool for Member States												
2.3		Approval reporting format and IT tool												
3		Launch of new process												

Table 3. Potential timeline for revision of Key Concepts Document (Cont.)

Steps		Year	2016				2017				2018			
		Quarter	1	2	3	4	1	2	3	4	1	2	3	4
Key Concept review process (cont.)														
Tables														
1	**2**													
3		Initiate consultation on open seasons												
4		Identify national focal points and experts and appoint national coordinators (using panels from Article 12 process where possible)												
5		National coordinators collate data in cooperation with focal points												
6		National review of data; validation, resolve inconstancies												
7		Compile and submit reports to EC												
8		EC Review												
9		EC requests to Member States for clarification or revision of information sent												
10		Publication of Key Concepts document												

5 Conclusions

Article 7(4) of the Birds Directive states that Member States "*shall see in particular that the species to which hunting laws apply are not hunted during the rearing season nor during the various stages of reproduction. In the case of migratory species, they shall see in particular that the species to which hunting regulations apply are not hunted during their period of reproduction or during their return to their rearing grounds."*

The Key Concepts of Article 7(4) of the Birds Directive provides:

- Interpretation of Article 7(4) and related EU case law
- Methodology and criteria for defining periods of reproduction and pre-nuptial migration for all Annex II species
- A series of species sheets, compiling information and timing of relevant periods in each of the EU Member States

Since the publication of Key Concepts document in 2001 it has been updated on one occasion, in 2009, to accommodate for EU enlargement. From the experience of conducting the 2009 revision, it is recognised that a more structured and transparent methodology is required for future updates. This report makes proposals for such a process.

One of the primary requirements is to achieve consensus on what is the best available data for defining the periods of reproduction and pre-nuptial migration for the Annex II species. To reach consensus on this point, clear information on sources used for defining these periods is essential to allow for peer review. Therefore a format for reporting references is proposed with guidelines on assessing data quality. In addition a step by step process of consultation is outlined at both EU and national level.

Besides updating the data for each species, updates may also be required for the methodology and criteria section of the document, reflecting on evolution of knowledge of reproduction biology and phenology. For pre-nuptial migration there are certain difficulties in defining the start of this period in compliance with "complete protection" during this time. While guidance on this point is relatively clear, more efforts are needed to follow advances in research. More use of international data and single species studies would give more accurate information and help distinguish between true migration from other patterns of movement. For the reproductive period, developments in knowledge of reproductive biology would complement data derived from field observations. Indeed use of comparative data sources is advisable.

The timeframe for updating the Key Concepts document must take into account the reporting obligations under the Birds and Habitats directives to avoid bottlenecks. At the same time certain synergies can be made. Lessons learned from the Article 12 reporting process under the Birds Directive will undoubtedly be valuable, so any review of the Key Concepts document should reflect on its outcomes in 2015. While periodic review is desirable there should also be scope for minor inter-periodic updates to resolve inconsistencies or cater for EU accession.

The Key Concepts document should act as decision support and reference tool for the European Commission, Member States and stakeholders. It is in the interest of these groups to ensure that it represents the best available data, not only to reach consensus but to assist Member States in implementing the Birds Directive. As the Key Concepts is a working document an adaptable framework is needed to evolve with advances in knowledge, without excessive burdens resources. A more structured and transparent approach should help to achieve this goal.

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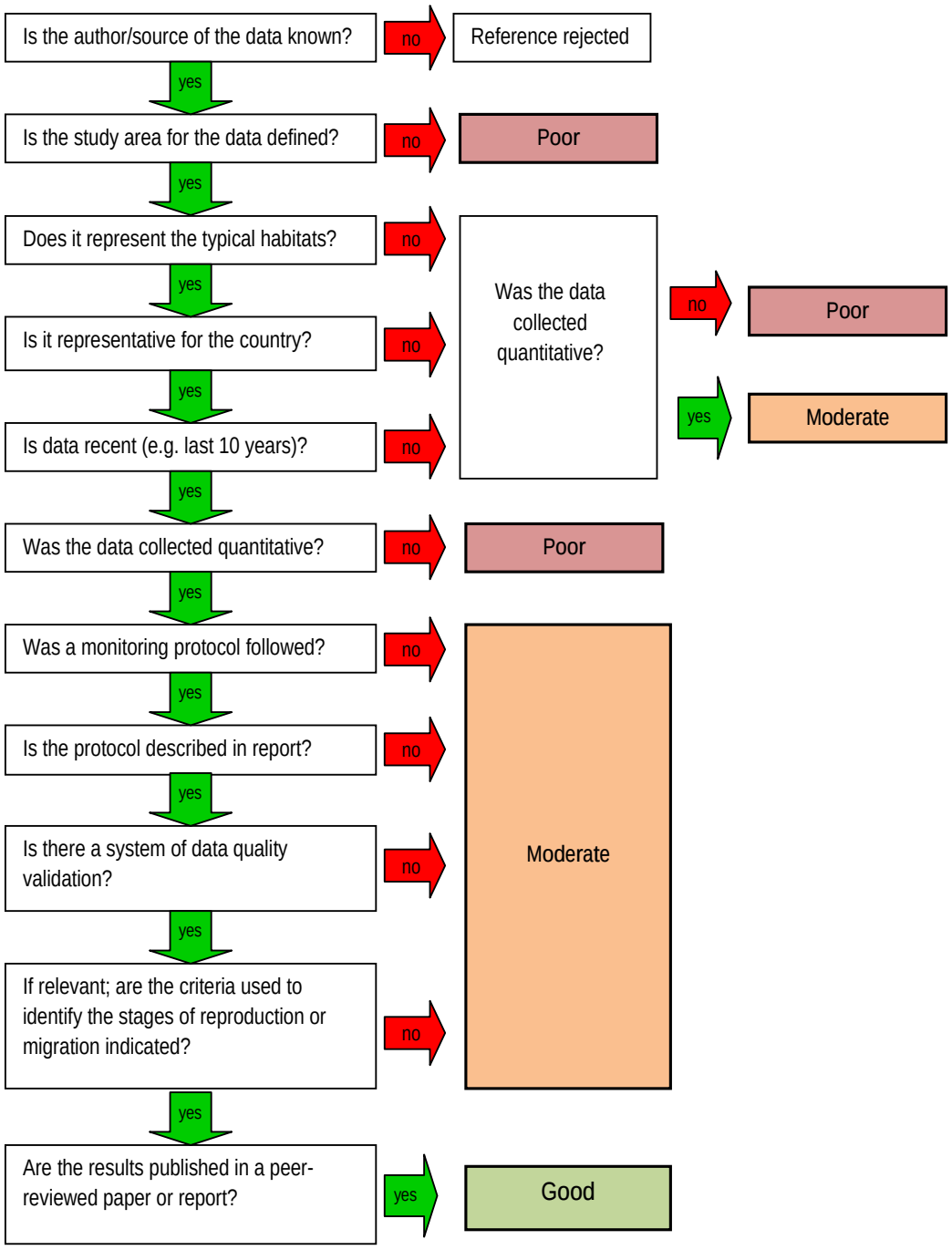
ANNEX VIII-1 - Checklist for assessing data quality



ANNEX VIII-2 – Form: references and information sources

1. References used in Key Concepts document for each species

Annex II Birds Directive species list (1 to 27 - *Cygnus olor* to *Lagopus lagopus*)

N°	Scientific name	Ref.(s) N°	Data quality*	Comments
			Good/Mod./Poor	(Criteria used, difficulties in defining periods, etc.)
1	*Cygnus olor*			
2	*Anser fabalis*			
3	*Anser brachyrhynchus*			
4	*Anser albifrons*			
5	*Anser anser*			
6	*Branta canadensis*			
7	*Branta bernicla*			
8	*Anas penelope*			
9	*Anas strepera*			
10	*Anas crecca*			
11	*Anas platyrhynchos*			
12	*Anas acuta*			
13	*Anas querquedula*			
14	*Anas clypeata*			
15	*Netta rufina*			
16	*Aythya ferina*			
17	*Aythya fuligula*			
18	*Aythya marila*			
19	*Somateria molissima*			
20	*Clangula hyemalis*			
21	*Melanitta nigra*			
22	*Melanitta fusca*			
23	*Bucephala clangula*			
24	*Mergus serrator*			
25	*Mergus merganser*			
26	*Bonasa bonasia*			
27	*Lagopus lagopus*			

Annex II species list (28 to 54 - *Lagopus muta* to *Numenius arquata*)

No.	Scientific name	Ref.(s) N°	Data quality*	Comments
			Good/Mod./Poor	(Criteria used, difficulties in defining periods, etc.)
28	*Lagopus muta*			
29	*Tetrao tetrix*			
30	*Tetrao urogallus*			
31	*Alectoris chukar*			
32	*Alectoris graeca*			
33	*Alectoris rufa*			
34	*Alectoris barbara*			
35	*Perdix perdix*			
36	*Coturnix coturnix*			
37	*Phasianus colchicus*			
38	*Meleagris gallopavo*			
39	*Rallus aquaticus*			
40	*Gallinula chloropus*			
41	*Fulica atra*			
42	*Haematopus ostralegus*			
43	*Pluvialis apricaria*			
44	*Pluvialis squatarola*			
45	*Vanellus vanellus*			
46	*Calidris canutus*			
47	*Philomachus pugnax*			
48	*Lymnocryptes minimus*			
49	*Gallinago gallinago*			
50	*Scolopax rusticola*			
51	*Limosa limosa*			
52	*Limosa lapponica*			
53	*Numenius phaeopus*			
54	*Numenius arquata*			

Annex II species list (55 to 80 - *Tringa erythropus* to *Sturnus vulgaris*)

No.	Scientific name	Ref.(s) N°	Data quality*	Comments
			Good/Mod./Poor	(Criteria used, difficulties in defining periods, etc.)
55	*Tringa erythropus*			
56	*Tringa tetanus*			
57	*Tringa nebularia*			
58	*Larus ridibundus*			
59	*Larus canus*			
60	*Larus fuscus*			
61	*Larus argentatus*			
62	*Larus cachinnans*			
63	*Larus marinus*			
64	*Columba livia*			
65	*Columba oenas*			
66	*Columba palumbus*			
67	*Streptopelia decaocto*			
68	*Streptopelia turtur*			
69	*Alauda arvensis*			
70	*Turdus merula*			
71	*Turdus pilaris*			
72	*Turdus philomelos*			
73	*Turdus iliacus*			
74	*Turdus viscivorus*			
75	*Garrulus glandarius*			
76	*Pica pica*			
77	*Corvus monedula*			
78	*Corvus frugilegus*			
79	*Corvus corone*			
80	*Sturnus vulgaris*			

2. Details of references and information sources used in Key Concepts document

N°	Publications	
	Bibliographic reference	
	Description	
	Study area	*E.g. Whole country / Region / wetland site / IBA*
	Species Covered	
	Years of Survey	
	Survey method(s)	*E.g. change in numbers or sex ratios at staging or wintering sites / first arrivals at breeding sites / bird ringing data / tracking studies / RADAR / recording of bird song*
	Data quality*	Good / moderate / poor

(repeat table as necessary)

N°	Non published	
	Reference / source / web-link	
	Description	
	Study area	*E.g. Whole country / Region / wetland site / IBA*
	Species Covered	
	Years of Survey	
	Survey method (s)	*E.g. change in numbers or sex ratios at staging or wintering sites / first arrivals at breeding sites / bird ringing data / tracking studies / RADAR / recording of bird song*
	Data quality*	Good / moderate / poor

(repeat table as necessary)

***Data Quality**

- **good** – reliable quantitative data available
- **moderate** – generally well known, but only poor, outdated or incomplete quantitative data available
- **poor** – poorly known, with no quantitative data available

ANNEX VIII-3 - Comparison of methods for monitoring bird migration

Monitoring method	Data produced	Can be used for
1) visual observation	Counts of individuals, sex and age ratios, habitat use, arrival on breeding grounds	Monitor changes in numbers at staging or wintering sites as an indicator of movements, but not size and trends and coarse movement patterns
2) night visual observation	Direction of movement, indicatory of intensity of passage/presence. Techniques include; night vision equipment, infra-red camera, or during good moonlight	Complementing other monitoring methods, useful for monitoring nocturnal migrants, but identification to at species level not reliable
3) Recording of bird song / bioacoustics	Precise species identification, indicatory of intensity of passage/presence	Complementing other monitoring methods, useful for monitoring nocturnal migrants, but direction of movement cannot be deduced.
4) Radar surveys	Direction of movement, indicatory of intensity of passage/presence, identification, only certain species groups can be indentified	Complement other monitoring methods, useful for monitoring nocturnal migrants, can be used during poor weather conditions, for high altitude migrations, but identification to at species level not possible
5) Ring recovery data	origin of individual birds, capture – re-capture data	Investigating bird movements, population origin. With intensive ringing/ capture/ recovery efforts dates of migration can be estimated
6) Tracking individuals	GPS tags provide very precise data on movements (location, time, distance travel, altitude etc.)	Detailed studies of movements, but expensive and individuals may not be representative of population.

ANNEX VIII-4 - SWOT analysis of current Key Concepts document.

As presented at the International Conference: Bird Conservation in the EU: planning for recovery action and sustainable use on 23-24 November 2010 in Brussels.

Strengths

- It provides a recognised reference for Member States when setting open seasons for hunting
- The dates are provided at Member State level and are specific to national geographical and meteorological conditions
- It provides a continent-wide overview of scientific knowledge of migrating and breeding periods of selected birds in one place
- There is mutual approval of the dates between the European Commission, Member States and in some circumstances stakeholder groups
- The use of 10 day periods (decades) simplifies the presentation of data while allowing for a suitable level of precision

Weaknesses

- For certain Members States there is lack of consensus over which data sources should be used
- Document rather cumbersome to use (6 pages per migratory species and 4 pages for sedentary species)
- Criticisms that references do not always corresponded to the species for which they are listed
- Gaps in references for some species
- Lack of human resources and/or access to specialist expertise on bird phenology with national ministries.
- Supplying the best available data for the Key Concepts document may not be seen as a priority by the Member State
- Discrepancies between Member States on the length of pre-nuptial migration and period of reproduction raise concerns of accuracy of data. This is in part due to differences in the indicators (e.g. occupation of breeding sites, nest building etc.) used to establish the beginning and end of to two periods.

Opportunities

- Creation of a searchable database would make consultation of the document easier (e.g. Article 17 web tool[47], for species covered by the Habitats Directive). This would allow Member States to condense the information relevant to them i.e. the huntable species in their country
- Make use of the Coordination Group for Biodiversity and Nature, and potential ad hoc groups for consultations with Member States. Possibly a new role for the ORNIS SWG.
- More structured reporting would avoid bottleneck in workload for the European Commission, and allow for regular review of a document covering 80 species in 27 countries
- Birds are a well studied taxonomic group and good information exists
- Initiatives to improve national collaboration between specialist research bodies. Such as the Avian Population Estimates Panel (APEP) in the UK .

Threats

- Continued polarisation between national institutions and stakeholder groups
- Lack of need or incentive to publish and therefore referee /peer review data based on 'citizens science' databases
- Insufficient resources to set up and run to review panels or committees at national or EU level
- Literature is often published in different languages and national papers, making it difficult to collect and review without a set up procedure at a national level.

[47] http://biodiversity.eionet.europa.eu/article17