WILDLIFE AND SUSTAINABLE FARMING AND THE BIRDS AND HABITATS DIRECTIVES

HOW SPECIES CONSERVATION CAN BE SUPPORTED THROUGH RURAL DEVELOPMENT PROGRAMMES

GOOD PRACTICE EXAMPLES

Prepared for the European Commission
Directorate General for Environment
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November 2009

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This document was written by members of the Consortium - Orbicon (DK), Ecosystems (BE), Atecma (ES) and Écosphère (FR)- who were awarded a contract to provide DG Environment with technical support to its Wildlife and Sustainable Farming Initiative. The views expressed within do not necessarily reflect the official views of DG Environment.

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1. INTRODUCTION

1.1. The Wildlife and Sustainable Farming Initiative (2006-2008)

In 2006, the European Commission's Directorate General for the Environment launched a 'Wildlife and Sustainable Farming Initiative' to consolidate information on the relationship between the conservation needs of selected species and compatible farming or forestry practices. The overall objective of the Initiative is to encourage a greater integration of provisions of the Habitats and Birds Directives into the Rural Development Programmes (RDP) and to demonstrate how this can be achieved in practice for certain species.

The Commission contracted a consortium of companies – Orbicon (DK), Atecma (ES), Écosphère (F) and Ecosystems (BE) - to provide it with technical support in delivering the following outputs under this Initiative during the period 2006-2008:

Detailed species reports for

1. Great bustard, *Otis tarda;*
2. Corncrake, *Crex crex;*
3. Hamster, *Cricetus cricetus;*
4. Skylark, *Alauda arvensis.*
5. Large blue butterfly, *Maculinea arion;*
6. Meadow viper, *Vipera ursinii;*
7. Yellow-bellied toad, *Bombina variegata;*
8. Bittern, *Botaurus stellaris;*
9. Capercaillie, *Tetrao urogallus;*
10. Great capricorn beetle, *Cerambyx cerdo;*
11. Ortolan Bunting, *Emberiza hortulana, and;*
12. Scops owl, *Otus scops.*

Each report provides a general description of the species, its habitat requirements, threats and conservation status within the EU. It also summarises key conservation measures needed for the species and beneficial management practices in a farming/forestry context. Case study examples are given of how these have been put into practice, *inter alia* through measures co-financed by the EU through the European Agricultural Fund for Rural Development (EAFRD).

A series of workshops were also organised to bring together different experts, stakeholders and authorities in order to discuss the main findings of the above reports and to exchange experiences on good practices across different Member States.

1.2. Purpose of this report

This report summarises the key findings of the Wildlife and Sustainable Farming Initiative and sets them in the context of the obligations arising out of the Birds and Habitats Directives on the one hand, and the opportunities offered by the Common Agricultural Policy (CAP) and the Rural Development Policy (2007-2013) on the other.

More specifically, the document presents:

- A concise overview of the obligations arising from the Habitats and Birds Directives for the conservation of certain wild plants and animals, and habitat types that occur in farmland or in forests;

- An overview of the Rural Development (RD) policy and the key stages leading to the adoption, implementation and review of national/regional Rural Development Programmes (2007-2013);

- A review of the specific provisions of the RD Regulation and rules governing cross-compliance under the CAP that could be used to promote or safeguard the conservation of species and habitats protected under the two EU Directives, and biodiversity in general;

- A series of fact sheets for the 12 species targeted by the Initiative. Each 8-page fact sheet provides key information about the species, its threats and beneficial farming/forestry practices. The relevant provisions of the EU nature Directives are summarised and advice is given on how these could be integrated into the different measures of CAP (e.g. Pillar I and Pillar II). Each fact sheet contains practical examples of EAFRD measures used in different countries/regions.

The document is intended for agricultural authorities and the farming/forestry stakeholders involved in planning and implementing the CAP and RDP provisions at national and regional levels and who want to know more about how they can integrate the legal obligations of the Habitats and Birds Directives into RDP and other measures of the CAP, particularly in relation to the species targeted under the present Initiative.

It is hoped the document will also be of use to environmental authorities, scientific institutions and conservation bodies in raising their understanding of how the provisions of the CAP, and the RD policy in particular, can be used to help conserve species and habitats protected under the two EU nature Directives in particular, and wildlife in general.

Copies of the species reports
can be downloaded from the EU Circa's website :
http://circa.europa.eu/Public/irc/env/swfi/home

2. THE EU HABITATS AND BIRDS DIRECTIVES

2.1 The EU's commitment to halting biodiversity loss by 2010

At the European Summit in Gothenburg in 2001, the European Union set itself the goal "to halt the decline of biodiversity in the EU by 2010"[1] and to "restore habitats and natural systems"[2] in response to the rapid global decline in wildlife.

This commitment is now firmly embedded in all aspects of EU policy. Biodiversity conservation is identified as one of the key operational objectives and targets of the Sustainable Development Strategy (SDS)[3] and the Lisbon partnership for growth and jobs.

The 6th Environment Action Programme (6th EAP)[4], which sets out the framework for environmental policy-making in the EU for the period 2002-2012, has 'nature and biodiversity' as one of four priority areas for action. The 6th EAP also advocates full integration of environmental protection requirements, including those related to biodiversity conservation, into all other Community policies and actions.

The details of how this is to be achieved are laid down in the European Commission's new EU Biodiversity Action Plan[5] adopted in 2006. The Action Plan identifies four main policy areas and sets out 10 key objectives to deliver the 2010 biodiversity target. These are, in turn, translated into over 150 individual priority actions and supporting measures which are to be implemented against specific time-bound targets at both national and European level.

The EU Action Plan represents an important new approach for EU biodiversity policy as it is the first time that all the relevant economic sectors and policy areas are addressed in a single strategy document and apportioned a share of the responsibility in its implementation. It recognises that change will only happen if there is a concerted effort from all economic sectors to help deliver the 2010 target.

The EU Plan also stresses the important ecosystem services that nature provides and upon which our economy and social wellbeing depends. Healthy ecosystems help to purify air, water, and regulate the climate, amongst others. They also provide basic goods such as food, fiber and wood. As such, they will have a major role to play in mitigating the effect of climate change in years to come.

2.2 The Habitats and Birds Directives

The Birds and Habitats Directives are the cornerstones of the EU's biodiversity policy. They enable all 27 EU Member States to work together, within the same strong legislative framework, to protect Europe's most valuable species and habitats across their entire natural range within the EU, irrespective of political or administrative boundaries.

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1 *Presidency Conclusions, Göteborg European Council 15 and 16 June 2001*
2 *COM (2001) 264 final*
3 *COM (2001) 264 final; Renewed EU Sustainable Development Strategy adopted by the European Council on 15/16 June 2006. http://register.consilium.europa.eu/pdf/en/06/st10/st10917.en06.pdf*
4 *Decision No 1600/2002/EC, OJ L 242, 10.9.2002, p.1*
5 *COM/2006/0216 final. http://ec.europa.eu/environment/nature/biodiversity/comm2006/index_en.htm*

The Birds Directive[6] was adopted in 1979 and aims to protect all wild birds and their most important habitats in the EU. Thirteen years later, the Habitats Directive[7] was adopted in 1992. This introduces similar measures as the Birds Directive but extends its coverage to a much wider range of rare, threatened or endemic species, including around 1000 plants and animals. Some 230 rare and characteristic habitat types are also, for the first time, targeted for conservation in their own right (e.g. lowland hay meadows, semi-natural grasslands, dehesas).

The following summarises the key provisions of each Directive.

2.2.1 Legal obligations arising out of the Habitats Directive

General requirements (Article 2)

The aim of the Habitats Directive is to contribute towards ensuring biodiversity through the conservation of around 1000 species of endangered, rare, endemic or vulnerable wild animals (other than birds) and plants listed in the various annexes and a further 230 habitat types which are in danger of disappearing or have a small natural range or which present outstanding examples of typical regional biogeographical characteristics.

The overall objective is to ensure that these species and habitat types are maintained at, or restored to, a '**favourable conservation status'**. The measures taken must also take account of economic, social and cultural requirements and regional and local characteristics.

Protecting core habitats for certain species (Article 3 and 4)

Some species and habitat types are so endangered, vulnerable, rare, or restricted that, in addition to being protected in their own right, they also require that their habitats are conserved as well. Annex I lists the habitat types in need of site protection, and Annex II lists the species[8] in need of site protection.

Member States, in cooperation with the European Commission, must designate a sufficient number of protected sites to ensure these species and habitat types are maintained, and where appropriate, restored to a favourable conservation status. The national lists of so called Sites of Community Importance (SCIs) are first proposed by Member States to the Commission, which after thorough consultation with the Member State adopts the legally binding list of SCIs in a form of a Commission decision.

Within six years from the moment that the given site is formally listed as an SCI, Member States are obliged to develop a set of measures to maintain and restore the habitats and species for which the site was designated to a favourable conservation status. Once the set of measures is developed Member States designate the sites as so called Special Conservation Areas, and notify such designations to the Commission.

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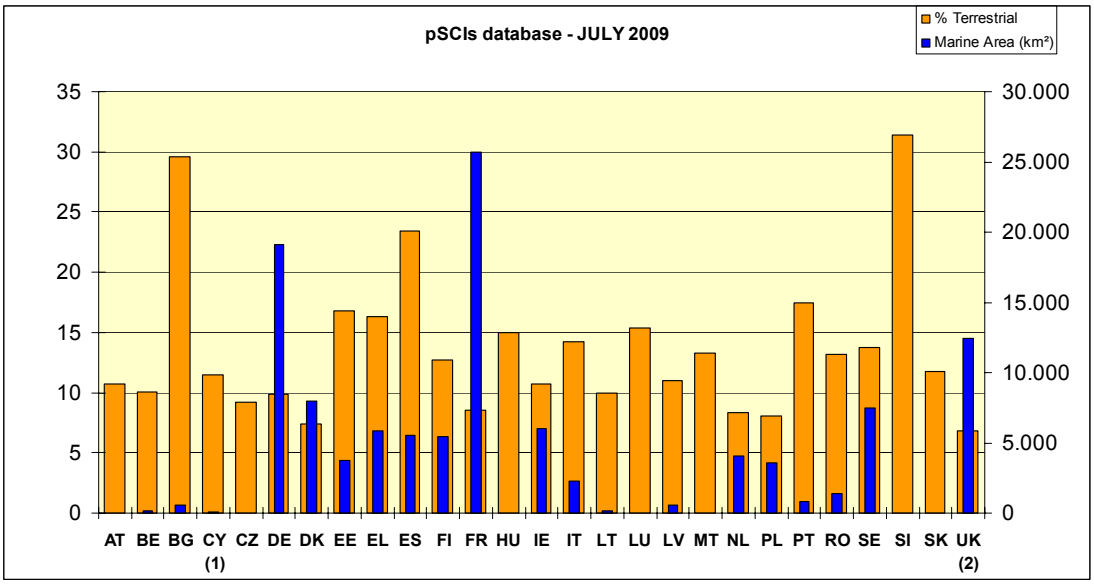
[6] *Council Directive 79/409/EEC on the conservation of wild birds, consolidated version ref 1979L0409 of 01.01.2007*
[7] *Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, consolidated version reference 01992L0043 of 01.01.2007*
[8] *There is considerable overlap between the species listed in annex II and those listed in annex IV but not all Annex IV species require specific site protection under Natura 2000 for their survival and are therefore not listed in annex II.*

By July 2009, 21.695 SCIs/SACs had been designated covering a total area of 681,826 km², of which 568,872 is terrestrial.[9] Both SCIs and SACs form an integral part of the Natura 2000 Network.



Managing SCIs (cf Article 6 (1) & (2))

Within these SCIs, Member States must:

- avoid damaging activities that could significantly disturb or deteriorate the natural habitat types or habitats of the species for which the site has been designated;
- take positive measures, where necessary, to maintain and restore these habitats and species to a favourable conservation status.

How this is achieved is for the Member States to decide. They can use provisions that are:

- statutory (e.g. creating a nature reserve);
- contractual (e.g. signing a management agreement with the land owner); or
- administrative (providing the necessary funds to manage the site).

Once the set of the positive conservation measures for a given SCI is developed by a given Member State the SCIs can reach its final status by being designated as SAC. A Commission guidance document on Article 6 of the Habitats Directive is available which helps explain the above provisions further[10].

Assessment and approval of plans and projects that may affect Natura 2000 sites (Articles 6 (3) (4) of the Habitats Directive)

The EU Nature Directives support the principle of sustainable development. Their aim is to guide economic activities by setting the parameters by which these can take place whilst safeguarding Europe's biodiversity.

[9] *European Commission, http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm*
[10] *The guidance document can be downloaded from http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm*

Thus, any plans or projects[11] that may have a significant negative effect on the species and habitat types for which the Natura 2000 site is designated must be first assessed to determine whether it is likely to have such an impact. If the impact is not likely to have an adverse effect on the integrity of the site then the project can go ahead.

There is no list of the types of plans or projects that may have significant negative impact on Natura 2000 sites, instead they need to be analysed on a case by case basis, taking into account the conservation objectives of the Natura 2000 sites concerned and the specific conditions in which the projects or plans are implemented. E.g. in some locations afforestation of agricultural land may be beneficial to the protection of a Natura 2000 site and protection of species because it helps create migration corridors and stepping stones, while in others it may result in loss of important habitats.

In certain cases the establishment of a new livestock unit, which will result in an increase of grazing on protected grasslands may be beneficial to certain habitats, while in other cases it may result in overgrazing and deterioration of the habitat and other ecological conditions required for the protected species. Therefore such projects need to be carefully assessed on a case by case basis.

If the effect of a plan or project on Natura 2000 sites is expected to be significant then alternative, less damaging, options must be fully explored and selected (e.g choosing another location, scale or technology). In exceptional cases, damaging projects can still go ahead if they are considered to be of overriding public interest and no viable alternatives exist. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised[12].

Funding the implementation of the Habitat Directive (Article 8)

In order to meet their obligations under the Habitats Directive, Member States are required to make, or continue to make, investments in infrastructure, activities, staff, and/or institutions. A large variety of activities are necessary for the effective management of sites e.g. developing management plans, habitat restoration, regular management activities such as mowing, or species monitoring ….

These activities impose a cost on the Member States, which should be covered by national budgets based on the principle of subsidiarity. However, in view of the substantial costs involved (estimated at 6.1 billion a year)[13], Article 8 of the Habitats Directive provides for the possibility of Community co-financing where needed[14].

[11] *This concerns not just plans or projects inside an SPA but also those that are outside but could have a significant effect on the conservation of species and habitats within an SPA. For instance a dam constructed upstream on a river that could alter or stop the regular flooding of an important wetland for birds within an SPA further downstream would also need to follow the procedures laid down in Article 6 of the Habitats Directive.*

[12] *The Commission has produced a detailed guidance document on Article 6 which explains matters further. It is available under http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm*

[13] *Commission Communication on Financing Natura 2000, Com (2004)431 final;*

[14] *The Commission has produced a guidance document and IT tool on financing Natura 2000 through EU funds available from http://ec.europa.eu/environment/nature/natura2000/financing/index_en.htm*

Creating a coherent network (Article 10)

In addition to designating SCIs, Member States should endeavour, through land use planning or development policies, to improve the ecological coherence of the network of sites by maintaining and, where appropriate developing, features of the landscape which are of major importance for wild fauna and flora, such as wildlife corridors or stepping stones used during migration and dispersal.

Protecting the species (cf Articles 12 and 13)

In addition to site protection provisions, the Habitats Directive also has species protection provisions. Thus, for species listed in Annex IV of the Habitats Directive (which in case of plants includes all those listed in Annex II), Member States should take the requisite measures to protect each species throughout its natural range within Europe.

In the case of **protected animals** listed in the Directive[15] this means prohibiting the following (Article 12):

- deliberate killing or capture by any method;
- deliberate disturbance, particularly during breeding, rearing, hibernation and migration;
- deliberate destruction or taking of eggs in the wild;
- deterioration or destruction of breeding sites or resting places;
- the keeping, sale and transport of specimens from the wild.

The Commission recommends that guidance and codes of good practice applicable to agricultural activities are developed and applied by Member States to complement legal requirements based their national or regional laws[17].

In the case of **protected plants** listed in the Directive this mean prohibiting (Article 13):

- the deliberate picking, collecting, cutting, uprooting or destruction of such plants in the wild;
- the keeping, transport and sale of such species taken from the wild.

Member States must also take appropriate measures to regulate the exploitation and taking of wild specimens of species listed in Annex V of the Directive (for instance, huntable species) to ensure that these activities are compatible with their being maintained at a favourable conservation status (Article 14).

Derogations to the above are allowed in some special circumstances provided that no satisfactory alternatives exist and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status (Article 16).

[15] *The European Commission has produced a Guidance document on the strict protection of animal species of Community interest under the 'Habitats' Directive 92/43/EEC (Articles 12 and 16), this can be downloaded from* http://ec.europa.eu/environment/nature/conservation/species/guidance/index_en.htm

2.2.2 Legal obligations arising out of the Birds Directive:

General requirements (cf Articles 2 & 3)

The overall objective of the Directive is to maintain the population of all species of naturally occurring wild birds present in the EU at a level which '*corresponds in particular to their ecological, scientific and cultural requirements, or to adapt the population of these species to that level'*.

To achieve this, Member States must preserve, maintain or re-establish a sufficient diversity and area of habitats for these species. This should include primarily the following:

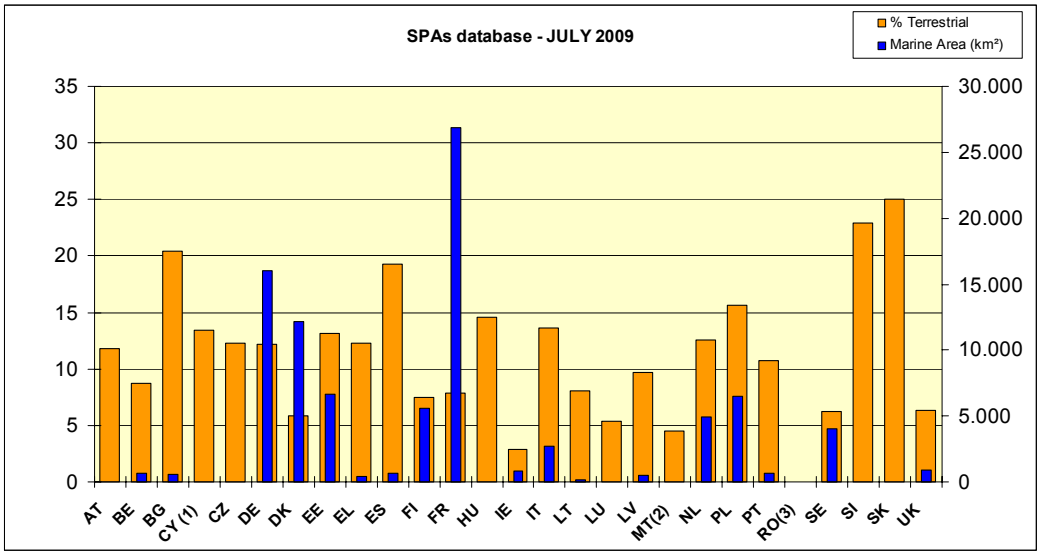
- creation of protected areas;
- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected areas;
- re-establishment of destroyed habitats;
- creation of habitats.

Protecting core habitats for certain species (cf Article 4)

In addition to the general provisions above, there are a number of wild bird species that are in a particularly vulnerable conservation state for which Member States must also classify the most suitable territories in number and size as Special Protection Areas (SPA) to ensure their survival and reproduction across their entire area of distribution within the EU. These are listed in Annex I of the Birds Directive.

Member States are also obliged to strive to avoid pollution and deterioration of bird habitats outside SPAs (last sentence of Article 4.4).

The SPAs form an integral part of the European Natura 2000 network. As of July 2009, 5210 SPAs have been classified covering around 560,634 km², of which 469,951 is terrestrial. [16]



[16] *European Commission, http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm*

Protecting and managing SPAs (Article 6 (2) of the Habitats Directive)

The provisions for protecting and managing SPAs are the same as for SCI/SACs protected under the Habitats Directive. Thus, within these SPAs, Member States must take appropriate steps to avoid:

- the deterioration of habitats of the species for which the site is designated;
- the disturbance of those species, in so far as such disturbance could be significant.

Measures must also be taken to manage, maintain or, if necessary, restore areas for the species both within SPAs and outside them so that the objectives of the Directive are reached (*cf Article 3*). The Birds Directive does not elaborate on how this should be done; it leaves this up to each Member State to decide.

Assessment and approval of plans and projects that may affect Natura 2000 sites (Articles 6 (3) (4) of the Habitats Directive)

The same provisions apply to SPAs as they do to SCIs/SACs – see section above

Protecting the species (cf Article 5, 6, 7, 8, 9)

In addition to site protection, Member States should also take the requisite measures to establish a general system of protection for all wild bird species throughout their natural range within the EU.

In particular they should prohibit the following:

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping of eggs;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping the birds in captivity and their sale.

Derogations to the strict species protection provisions are nevertheless allowed in some special circumstances (e.g. to prevent serious damage to crops, livestock, forests, fisheries and water) provided that there is no other satisfactory solution and that the consequences of these derogations are not incompatible with the overall aims of the Directive.

Some species listed in Annex II of the Birds Directive may be hunted but Member States must ensure that hunting is done in a way that complies with the principles of wise use and does not jeopardise conservation efforts in their distribution area. For instance, hunting should not in principle be allowed during the rearing seasons, or during the various stages of reproduction, or, in the case of migratory birds, during their return to their rearing grounds[17].

[17] *The Commission has produced a guidance document on hunting under the Birds Directive which can be downloaded from* http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/index_en.htm

In summary, the two EU Nature Directives impose similar measures for the protection of the listed species on the one hand and of their habitats on the other.

The following is a summary of which articles correspond to which provisions in the two Directives.

BIRDS DIRECTIVE	← PROVISIONS →	HABITATS DIRECTIVE
Article 2 and 3	Overall objectives	Article 2 and 3
Article 5,6,7,8, 9	Species protection provisions	Articles 12, 13, 14, 15,16
Article 9	Derogations to species protection provisions	Article 16
Article 4 (1) (2) (3)	Site designation provisions (Natura 2000)	Articles 3, 4, 5
Article 6 (2) of the Habitats Directive	Site management provisions	Article 6 (1) (2)
Article 6(3) (4) of the Habitats Directive	Handling of development plans and projects likely to affect Natura 2000	Article 6(3) (4)
Article 3	Habitat protection outside Natura 2000	Article 10
-	Financing Natura 2000	Article 8
Article 10	Surveillance, monitoring, research	Articles 9,11, 18
Article 12	Reporting	Article 17
Annex I	Species and habitat types requiring site protection under Natura 2000	Annex I (habitat types) Annex II (species)
(all wild birds in EU)	Species in need of strict protection	Annex IV (including all Annex II plant speces)
Annex II, III	Species requiring regulation of exploitation activities (eg hunting, sale)	Annex V
Annex IV	Prohibited means of capture and killing	Annex VI

2.3 Measuring the success of the EU Directives

In order to know whether the two EU Nature Directives are succeeding in their objective to safeguard Europe's most valuable wildlife and habitats, a health check is undertaken every six years. This is based on monitoring work carried out at national level both within and outside Natura 2000 sites.

In the case of the Habitats Directive, the European Commission, supported by the European Environment Agency, makes an assessment of the overall conservation status of each of the plants, animals and habitat types listed in the annexes, based on national reports submitted by the Member States.

The assessment uses a traffic light system:
→ green for favourable conservation,
→ amber for inadequate, and
→ red for bad or unfavourable conservation status.

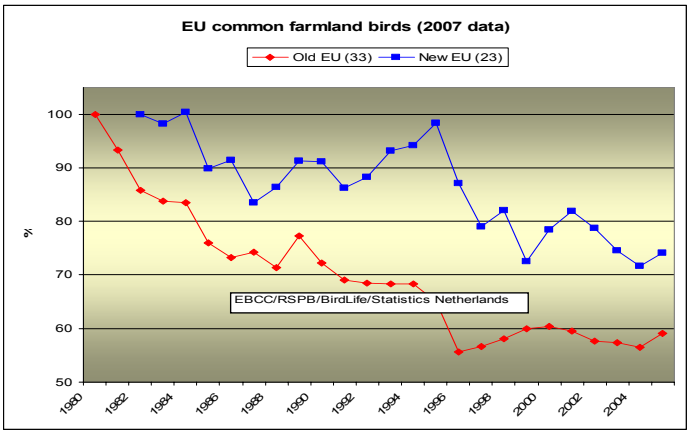
So, at a glance, people can get a clear picture of whether the Directive is helping to conserve the species and habitats it is designed to protect, or whether additional efforts are required. In such cases the assessment can help to determine where the priorities for future action should lie.

Species x	**Favourable status**	**Inadequate status**	**Bad status**
Range	*Stable or increasing and ≥ favourable reference range*	*Not qualifying for red or green*	*Large decline (> 1% per year*) or more than 10% below f.r.r.*
Population	*≥ favourable reference population and population structure normal*	*Not qualifying for red or green*	*Large decline (> 1% per year*) or more than 25% below f.r.p. or pop.struct. strongly deviating from normal*
Habitat for species	*Habitat sufficiently large and habitat quality suitable for long-term survival*	*Not qualifying for red or green*	*Area of habitat clearly insufficient or habitat quality not allowing long-term survival*
Future prospects	*Pressures and threats not significant, long-term viability ensured*	*Not qualifying for red or green*	*Severe influence of pressures and threats, bad prospects re. long-term viability*

The first assessment under the Habitats Directive for the period 2000-2006 was completed in 2009 and its results are available at[18]:
http://ec.europa.eu/environment/nature/knowledge/rep_habitats/index_en.htm

In the case of the Birds Directive, the information at EU level is compiled independently by the Pan-European Common Bird Monitoring Scheme (PECBMS) run by the European Bird Census Council *http://www.ebcc.info/*.

Every year the report provides a set of indicators for farmland, forest and all common birds for Europe, the EU and their regions. The Wild Bird Farmland Indicator (FBI) is also provided to the European Commission and Eurostat for use as one of the Commission's official biodiversity indicators.

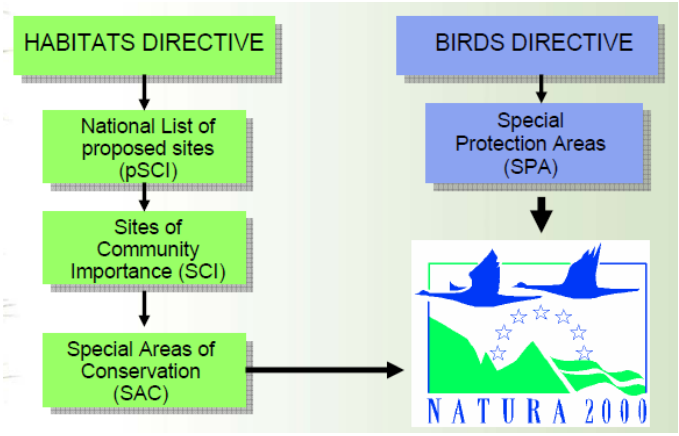


[18] *The status of specific species and habitat types under a range of conditions can be found: http://biodiversity.eionet.europa.eu/article17.*

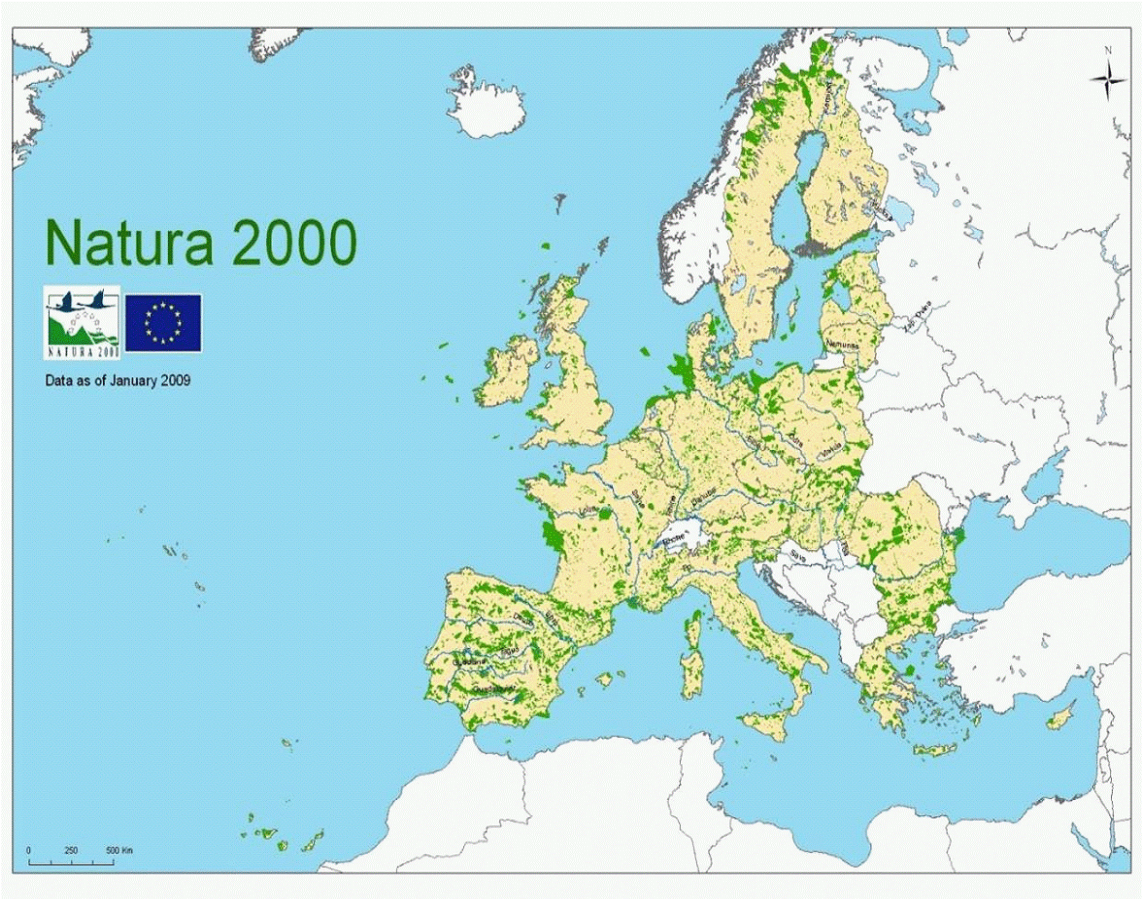
2.4 The European Natura 2000 Network

Central to the implementation of the two Directives is the establishment of a coherent ecological network of sites – called the Natura 2000 Network. Natura 2000 includes both SCIs designated under the Habitats Directive and SPAs classified under the Birds Directive.

To simplify the language they are often just referred to as Natura 2000 sites.[19]



There are approximately 25,000 sites in the European Natura 2000 Network to date. In total, they cover a substantial area of the European territory – almost one fifth of the land area – making it the largest network of conservation areas anywhere in the world.



[19] *Some sites are designated both SCIs (because they host certain species and habitats under the Habitats Directive) and SPAs (because they host bird species protected under the Birds Directive).*

Individual Natura 2000 sites can range in size from less than 1 ha to over 5,000 km² depending on the species or habitats they aim to conserve, but the majority tend to be around 100–1,000 ha. Some are located in remote areas but most are an integral part of the countryside and contain a range of different habitats, buffer zones and other elements of the landscape. As a result, Natura 2000, not only safeguards some of Europe's rarest species and habitats, but it also provides a safe haven for countless other animals, plants and wildlife features which, although more common, are an equally important part of our natural heritage.

2.5 Managing Natura 2000 sites as part of a living landscape

People often associate nature conservation with strict nature reserves where human activities are systematically excluded. As Natura 2000 covers such a substantial part of the EU territory, restricting or freezing economic activities within these areas is neither realistic nor desirable.

Instead, Natura 2000 adopts a different approach. It fully recognises that man is an integral part of nature and the two work best in partnership with one another. Indeed, many sites in Natura 2000 are valuable precisely because of the way they have been managed up to now. In such cases, it will be important to ensure that these sorts of activities (e.g. extensive farming) can be maintained well into the future.

Such an approach has many advantages, both for nature conservation and for the people living and working in rural areas. By actively associating different land-users in the management of Natura 2000 sites it is possible to ensure that vulnerable semi-natural habitats and species, which are dependent upon positive management, are maintained. By the same token, the sheer scale of Natura 2000 makes it a powerful ally in helping to maintain the economic viability and social fabric of many rural areas. It could also help to focus Community financial support to such areas and bring new opportunities for economic diversification and inward investment.

The key to managing any Natura 2000 site is to ensure that activities are carried out in a way that safeguards the species and habitat types for which the site has been designated. But there is no 'one size fits all' rule. How a site is managed will vary from one Natura 2000 site to another in function of the species and habitats present, local environmental conditions, and local economic, social and cultural considerations.

Management decisions are therefore best made on a case-by case basis by sitting down with those who live and work in the area to agree together on the most appropriate ways to conserve the species and habitats present whilst respecting the local socio-economic context.

The Habitats Directive recommends developing management plans for Natura 2000 sites precisely to help establish a dialogue between all interested parties and agree on pragmatic management solutions.

Although not obligatory, Natura 2000 management plans are useful tools because:

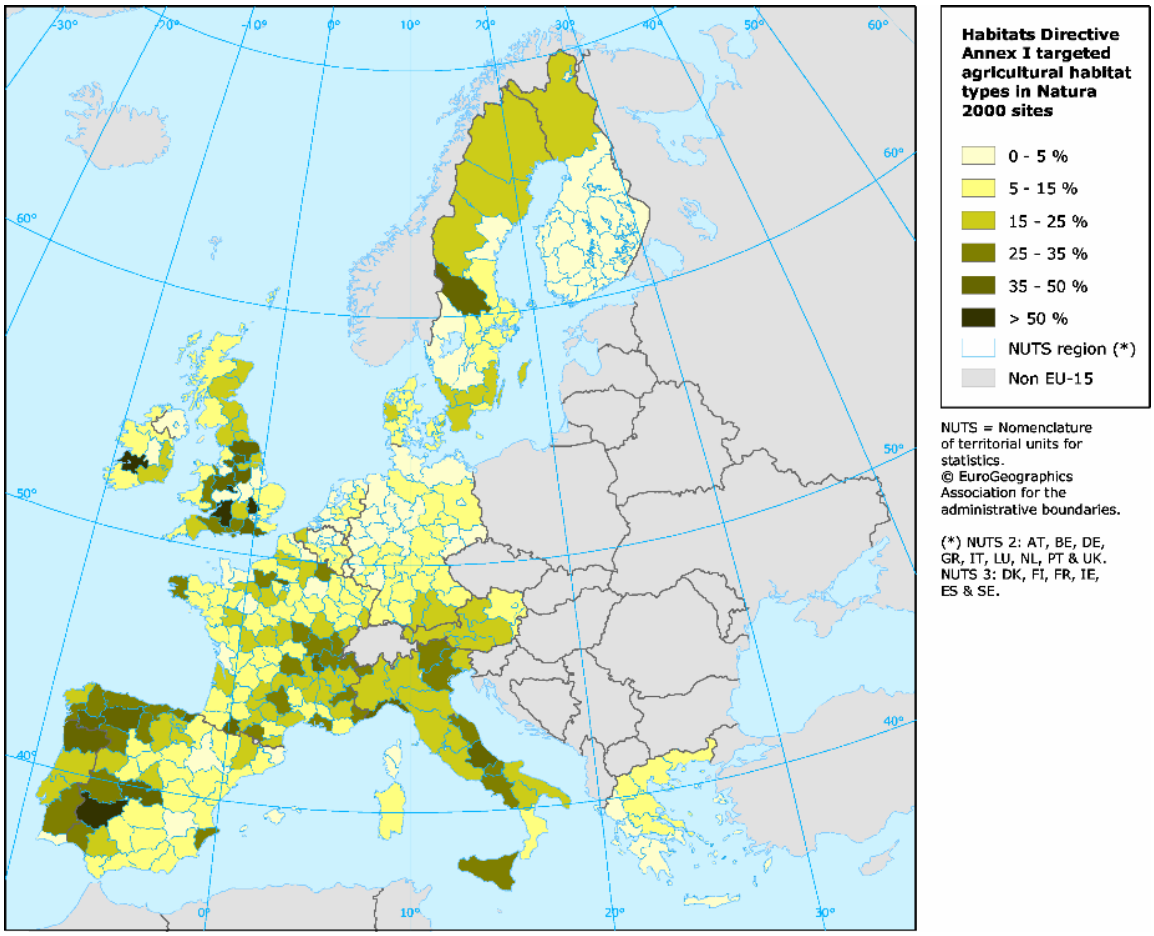
- they record the conservation needs of the habitats and species for which the site was designated so that it is clear to all what is being conserved and why;
- they analyse the socio-economic and cultural context of the area and the interactions between different land-uses and the species and habitats present;

- they provide a forum for debate and help build a consensus on the long term management of the site;
- they help find practical management solutions that are sustainable and fully integrated into other land uses.

Many Member States have begun developing management plans for their Natura 2000 sites as a result. These will play an important role in guiding management priorities at each site and finding ways to allocate adequate resources to these priorities.

2.6 Agricultural areas in Natura 2000

In view of the long tradition of low intensity farming in Europe and the importance of semi-natural habitats for wildlife, it is no surprise that a significant proportion of the area included in Natura 2000 relates to agricultural land. Around a quarter of the habitat types listed in the Habitat Directive depend on, or are associated with, agricultural activities. They include various types of heathlands, dry grasslands, steppic areas, wet meadows, wooded pastures, such as the dehesas or montados of the Iberian Peninsula.



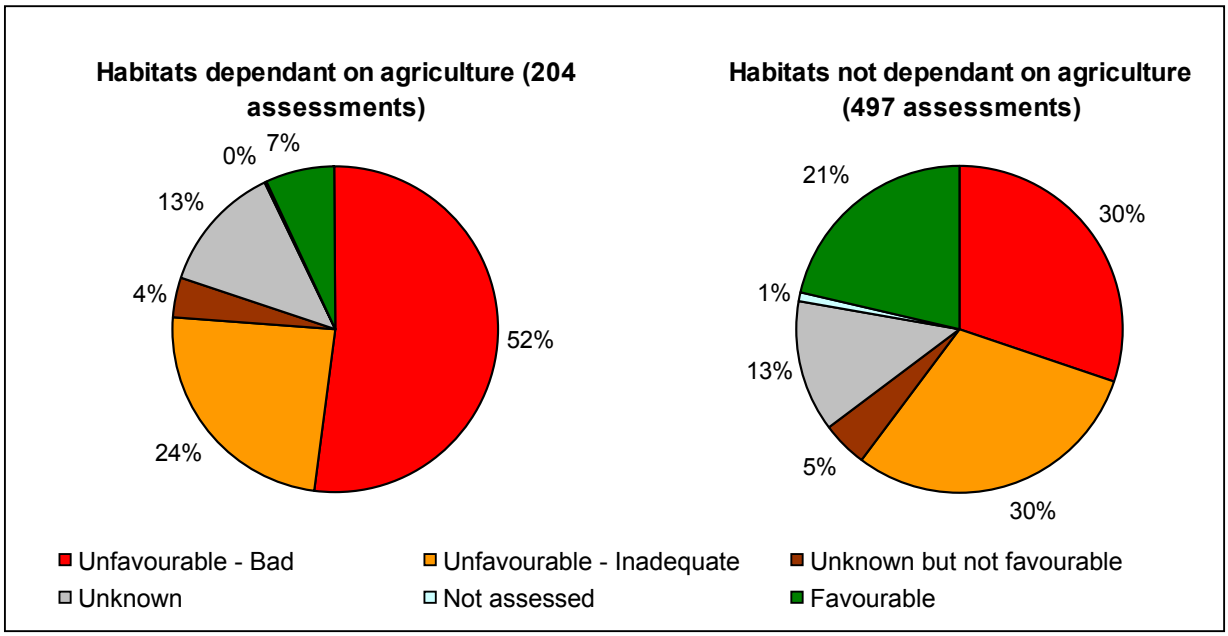
Share of habitats within Natura 2000 sites that depend on extensive farming practices (Snapshot July 2004) *prepared by European Topic Centre for Nature Conservation and biodiversity (Map of EU-27 not yet available).*

An equally significant number of species protected under the two nature Directives are also associated with agricultural areas. They include mammals such as the souslik *Spermophilus citellus,* common hamster *Cricetus cricetus* or steppe polecat *Mustela eversmannii,* insects like the crickets *Saga pedo* or *Paracaloptenus caloptenoides,* butterflies like the large blue *Maculinea arion* and the marsh fritillary *Euphydryas aurinia* as well as a whole host of rare plants and around a third of all European bird species.

As a result over 12% of the total agricultural area in the old EU-15 countries is included within the Natura 2000 Network. In many of these Natura 2000 areas, existing farming practices are already likely to be compatible with the conservation requirements of the species and habitat types for which the site is designated.

The main objective in this case will be to ensure that these activities can be maintained and re-introduced so that the species and habitat types present achieve a favourable conservation status. Because Natura 2000 is explicitly mentioned in the Rural Development Regulation, it is possible to channel EU funds towards their maintenance and, where possible, re-introduction.

This is all the more important as the recent assessment of the conservation status of habitat types listed under the Habitats Directive[20] shows that those habitats dependent upon agriculture (for instance grasslands dependent on extensive grazing) are in a worse conservation state than other non-agricultural habitat types with only 7% favourable compared to 21% for non-agricultural habitats. Priority must therefore be given to addressing these concerns and re-establishing appropriate farming activities in agricultural Natura 2000 areas.



Conservation status of habitats dependent (left) or not dependent (right) on agriculture – source European Topic Centre for Nature conservation and Biodiversity, Paris, Dec 2008

[20] *The assessment is based on an analysis of data in the national reports submitted by Member States for period 2001-2006 under Article 17 of the Habitats Directive*

As mentioned previously, Natura 2000 management plans, where they exist, can help significantly in focussing limited resources to priority areas and identifying the most relevant and appropriate land management measures required in cooperation with local land owners and users.

2.7 High Nature Value Farmland

Whilst Natura 2000 provides a clear focus for prioritising conservation actions, it should not be forgotten that the two nature Directives also require wildlife to be conserved outside Natura 2000 as well.

Nature and wildlife cannot survive in isolated pockets alone. Many natural areas in Europe are now highly fragmented and increasingly isolated from one another. So unless measures are taken to maintain biodiversity and compatible land uses in the broader countryside as well, many of the smaller nature sites and more vulnerable species are likely to disappear altogether despite our best efforts to save them.

Moreover, biodiversity conservation is not just about focussing on the conservation of rare and vulnerable species. There is much more at stake and we should not wait until a species is on the verge of extention before taking action. Inevitably, emergency measures are much more expensive than preventive or pre-emptive measures implemented before the species is in serious danger. Once the species is on the verge of extinction, last minute rescue plans are also much more likely to fail.

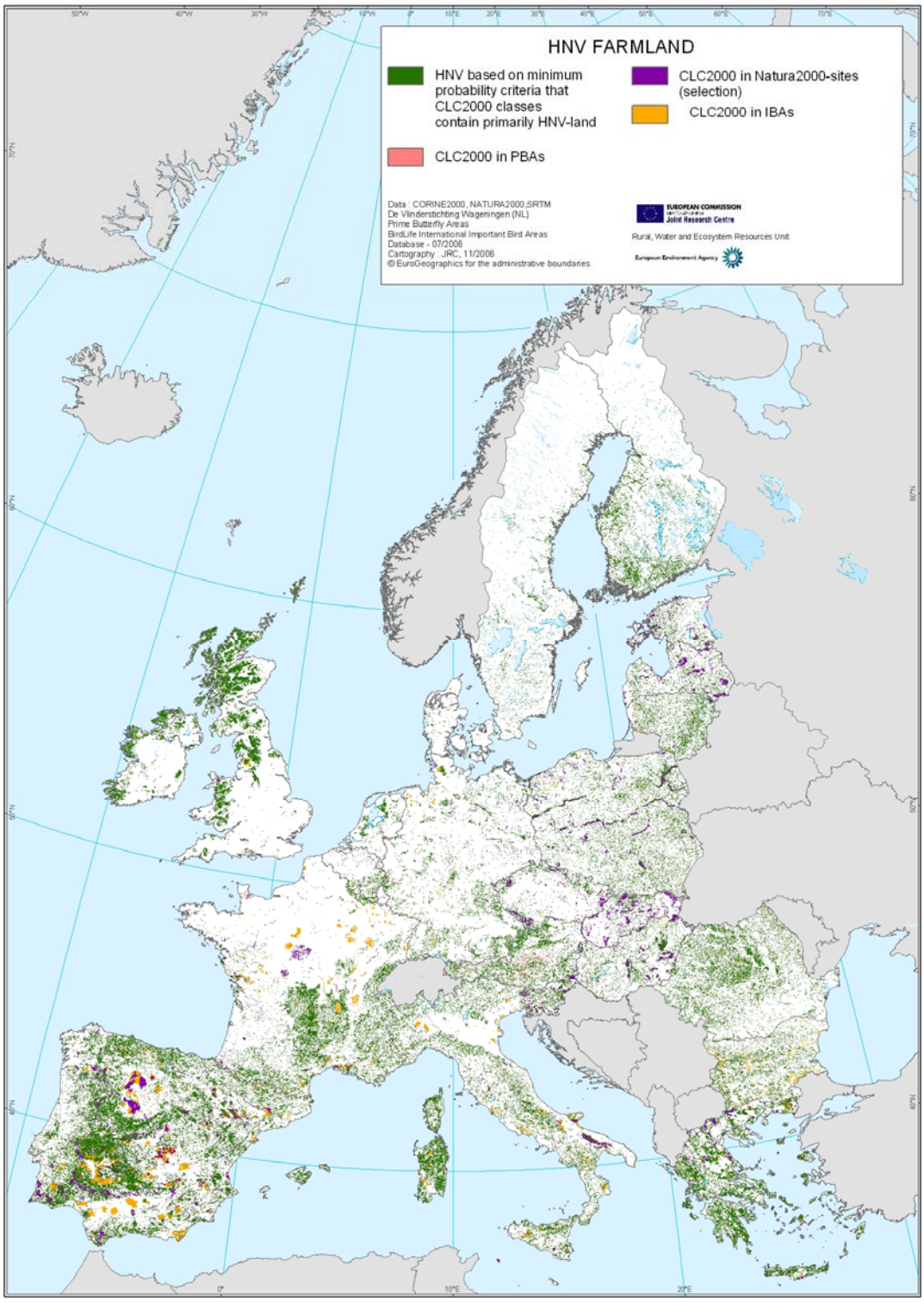
In addition, healthy ecosystems provide many important ecosystem services, such as the provision of food and fibre, pollination, water purification, floodwater absorption, and the preservation of soil strcuture, amongst others, which are all of direct economic benefit. They will be a major contributor to helping to deal with the potentially devastating effects of climate change. It is essential therefore that action is taken beyond Natura 2000 to safeguard existing biodiversity hot spots and areas of high nature value in the wider agricultural environment as well across Europe.

This problem is recognised in the Commission's communication 'on halting the loss of Biodiversity by 2010 – and Beyond'[21] which states that "*Natura 2000 and the conservation of threatened species will not be viable in the long–term without a wider terrestrial, freshwater and marine environment favourable to biodiversity. Key actions include: optimising the use of available measures under the reformed CAP, notably to prevent intensification or abandonment of high–nature–value farmland, woodland and forest and supporting their restoration.*"

To help focus attention on this wider environment, work began in 1993 on developing the concept of 'high nature value farmland' which has been described as '*those areas in Europe where agriculture is a major (usually dominant) land use and where that agriculture supports, or is associated with either a high species or habitat diversity or the presence of species of European conservation concern or both"*

[21] *COM(2006) 216 final COMMUNICATION FROM THE COMMISSION HALTING THE LOSS OF BIODIVERSITY BY 2010 — AND BEYOND Sustaining ecosystem services for human well–being.*

A significant proportion of Natura 2000 sites are included in HNV farmland but together they make up only a third of the total area of high nature value farmland.



(PBA = prime butterfly areas ; IBA= Important bird areas)
Map of High Nature Value Farmland in EU-27, source JRC/EEA 11.2006

The most recent study on HNV farmland in Europe identifies three type of HNV farmland:

Type 1: Farmland with a high proportion of semi-natural vegetation;

Type 2 Farmland with a mosaic of low intensity agriculture and natural and structural elements, such as field margins, hedgerows, stone walls, patches of woodland or scrub, small rivers etc;

Type 3: Farmland supporting rare species or a high proportion of European or world populations.

EEA-JRC[22] is currently working on estimating the distribution of HNV farmland at EU level. The above map should be taken as showing the likelihood of presence of HNV farmland and an estimate of its distribution. Because of limitations in the data sources, there are several uncertainties in various parts of Europe. In some cases there will be over-estimates, while in others the maps will under-estimate the HNV situation on the ground (Paracchini et al 2008 – the EEA-JRC report).

Whilst it is still difficult to estimate what proportion of agricultural area is finally considered High Nature Value Farmland, it is generally accepted that this can range from less than 10% in some countries to well over 30% in others, with some even over 50%, but on average it seems to be around a quarter of all agricultural areas in EU-25[23]

It should also be noted that, given the size of the challenge, a multi-dimensional approach to the conservation of farmland biodiversity is needed, combining an appropriated and targeted management of Natura 2000 sites designated under the EU Birds and Habitats Directives, with the maintenance of the natural values associated with those farming systems that favour biodiversity across the 'wider countryside'.

The urgency of the need for policy intervention to support HNV farming systems is widely acknowledged. In response to this, the Community Strategic Guidelines for rural development, 2007 – 2013, encourage Member States to put in place measures to preserve and develop HNV farming and forestry systems and traditional agricultural landscapes (see quoted text in section 3.1).

The objective established within RD policy is not to delineate or designate particular areas as HNV, but rather to use rural development measures to preserve and develop farming and forestry systems that support the natural values of HNV farmland. These are the types of farming and forestry systems that are known to be inherently rich in species and habitats of conservation concern. These are often found in designated sites, such as under Natura 2000, but are also widespread in other areas of the countryside, especially on poorer land where agricultural intensification has not been possible.

[22] http://agrienv.jrc.it/activities/hnv/docs/

[23] map from http://agrienv.jrc.ec.europa.eu/activities/hnv/docs/

3. DRAWING UP RURAL DEVELOPMENT PROGRAMMES UNDER EAFRD (2007- 2013)

3.1. Preparing Rural Development Programmes

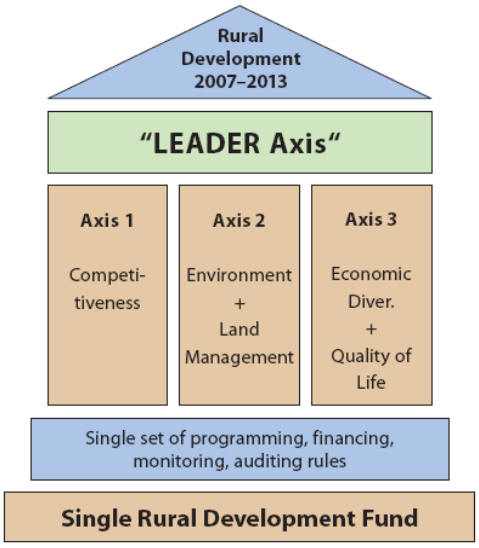
The so-called "Rural Development Programmes" implement the European Union Regulation on support for rural development. Their general objective is to contribute to economic and social coherence and to meet central objectives of competitiveness and sustainable development. These are further expressed through the three specific objectives:

- Improved competitiveness of agriculture and forestry through support to reorganisation, development and innovation;
- Improvements in relation to environment, nature and landscapes through support to land management; and
- Improved quality of life in rural areas and support for the diversification of economic activities here.

More than 56 % of the population in EU-27 lives in rural areas, which covers 91 % of the territory of the Union. The need to secure populations in rural areas related to the mentioned objectives is therefore obvious. Furthermore, traditional farming practices in rural areas are in many cases also essential for securing the conservation of many habitat types and species.

The new Rural Development Regulation (2007-2013) [24] was adopted in September 2005 after a series of major reforms of the Common Agricultural Policy (CAP). Often referred to as Pillar II of the CAP, it focuses on three core policy objectives more specific defined as:

- Axis 1: improving the competitiveness of agriculture and forestry;
- Axis 2: improving the environment and the countryside;
- Axis 3: improving the quality of life and diversification of the rural economy.



The relationship between the different focus areas inside rural development programmes

[24] *Council Regulation (EC° N°1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development OJ L-277, 21/10/2005*

Accompanying these three thematic axes is a horizontal cross-cutting Axis 4 - known as LEADER - which introduces possibilities for locally based bottom-up approaches to rural development.

The EU Regulation defines the *scope* of EU financial assistance for rural development under each of the axes. By listing a series of pre-defined measures and conditions for each axis, it provides the Member States with a 'tool box' from which they can select the ones they believe will create the highest value added for rural development in their country (regions) whilst respecting agreed EU priorities. Only the agri-environmental measure is compulsory.

3.1.1 EU Community Strategic Guidelines

Member States are however not completely free to pick and choose at will from this list of rural development measures. They must also be able to demonstrate that they are respecting the priorities set for rural development for the EU as a whole.

The EU priorities are enshrined in the Community Strategic Guidelines[25] adopted in February 2006 and are designed to help Member States:

- identify the areas where the use of EU support for rural development creates the most value added at EU level;
- make the link with the main EU priorities (Lisbon, Göteborg);
- ensure consistency with other EU policies, in particular cohesion and environment;
- accompany the implementation of the new market orientated CAP and the necessary restructuring it will entail in the old and new Member States.

In the case of Axis 2 '*improving the environment and the countryside'* the Strategic Guideline is as follows:

Community Strategic Guidelines for Axis 2 of RDP (2007-2013)

"To protect and enhance the EU's natural resources and landscapes in rural areas; the resources devoted to Axis 2 should contribute to three EU-level priority areas: biodiversity and the preservation and development of high nature value farming and forestry systems and traditional agricultural landscapes; water; and climate change.

The measures available under Axis 2 should be used to integrate these environmental objectives and contribute to the implementation of the agricultural and forestry Natura 2000 network, to the Gothenburg commitment to reverse biodiversity decline by 2010, to the objectives laid down in Directive 2000/60/EC in the field of Water Policy (the Water Framework Directive) and to the Kyoto Protocol targets for climate change mitigation."

In order to meet these EU priorities, Member States are encouraged to focus support on a number of key actions such as:

(i) promoting environmental services and animal-friendly farming practices;
(ii) preserving the farmed landscape and forests;
(iii) combating climate change;
(iv) consolidating the contribution of organic farming;
(v) encouraging environmental/economic win-win initiatives;
(vi) promoting territorial balance.

[25] *Community Strategic Guidelines for Rural Development (2006/144/EC), Council Decision of 20.2.06*

3.1.2 National Strategy Plan

Every Member State then draws up its own National Strategy Plan based on these Community Guidelines. Like the Community Guidelines, the National Strategy Plans are intended to give a strategic orientation to rural development initiatives for that country. In particular, attention must be paid to striking a balance between the different thematic axes based on an assessment of the specific economic, social and environmental situation of that country/region and of the needs and gaps identified. It should also take account of different EU and national priorities bearing in mind the capacity of the country to implement the measures and provide sufficient match-funding.

The National Strategy Plans have to be prepared in close collaboration with all the relevant partners, including regional and local authorities, economic and social partners, NGOs and other representatives of civil society, including environmental organisations. Furthermore, the plan shall be drawn up in close collaboration with the Commission, in order to ensure that they are in line with Community Strategic Guidelines and are 'fit for purpose', for instance, that they are in line with the environmental conditions of the country and address the needs and gaps identified.

3.1.3 National and Regional Rural Development Programmes

On the basis of both the Community Strategic Guidelines and the National Strategy Plan, the Member State develops either a single programme for its entire territory or a set of regional programmes. These programmes are the 'nuts and bolts' as they identify specifically what can be funded, where, by whom, for what amount, etc.

Again, to ensure consistency and efficacy, regions and Member States must follow detailed provisions provided both by the Council Regulation on Rural Development[26] and by the Commission implementing Regulation[27] on the required structure and contents of each RDP and of the procedure to be followed for their adoption.

Each Rural Development Programme should include, amongst others:

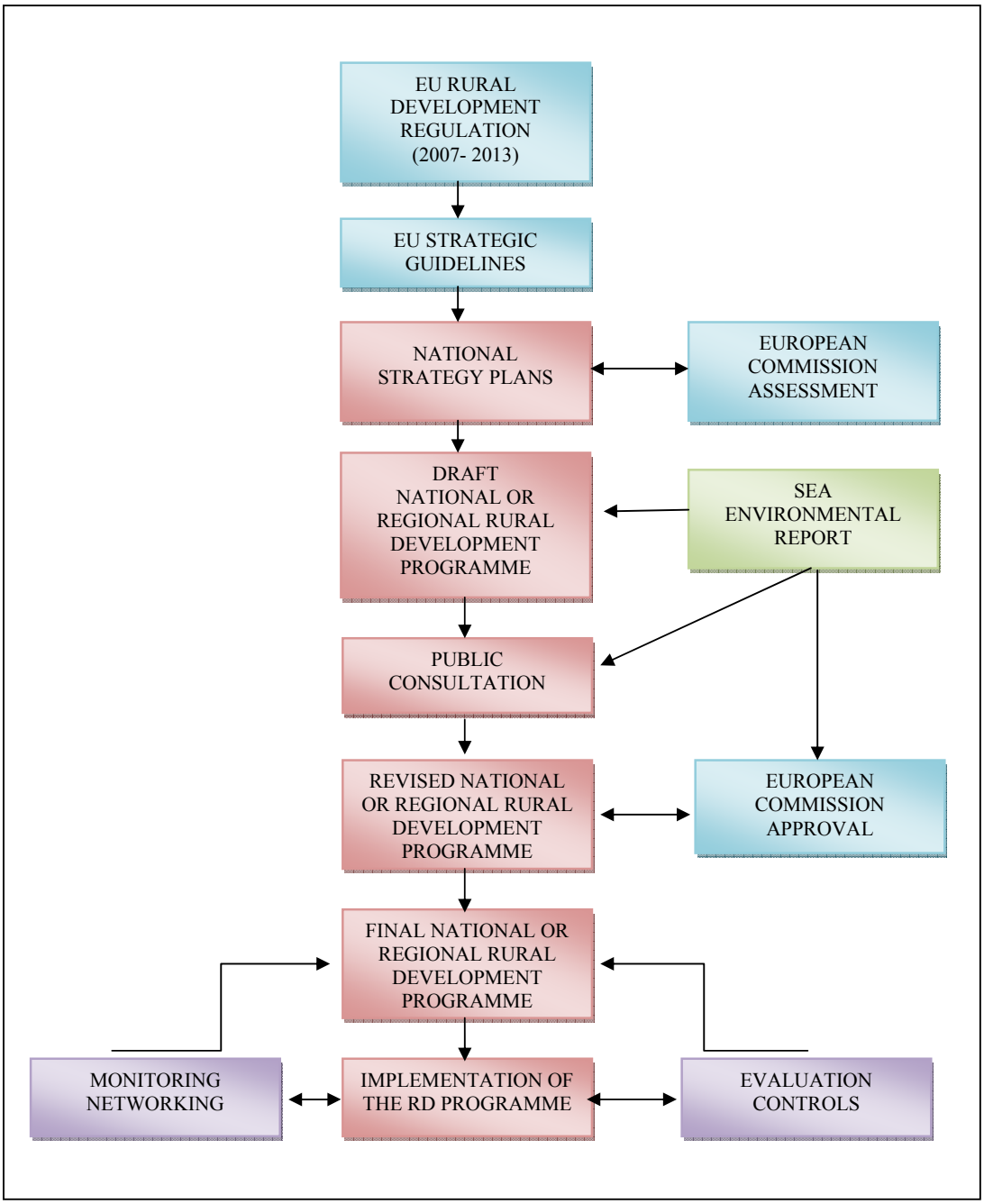
- An analysis of the situation regarding rural development in terms of strengths, weaknesses, opportunities and threats within that country, including an analysis of the environmental situation;
- A justification of the priorities chosen (e.g. how much money they intend to allocate to each axis while respecting the minimum threshold established in the Rural Development Regulation) having regard to the Community Strategic Guidelines and the National Strategy Plan as well as the expected impact of the measures proposed;
- Information on the axes and measures proposed for each axis: this should include a detailed description of the measures together with verifiable objectives and indicators;
- A detailed financing plan with a breakdown of funds per axis and per measure.

Once finalised, the proposal for each Programme is sent to the European Commission for assessment. The latter evaluates whether the proposal is consistent with EU Strategic Guidelines, the National Strategy Plan and the EAFRD Regulation. If not, the Commission enters into bilateral discussions with the Member State/region in order to help complete/revise the programme.

[26] *Council Regulation (EC) No 1698/2005*
[27] *Commission Regulation (EC) No 1974/2006*

For the programming period 2007-13 **94 Rural Development Programmes** had been adopted by the European Commission. (More information can be found on the homepage: *http://ec.europa.eu/agriculture/rurdev/countries/index_en.htm*).

Stages in the development and implementation of Rural Development programmes



3.1.4 Public consultation over draft Rural Development Programmes

The Rural Development Programmes for the period 2007-2013 had to be developed in an open and collaborative way (Article 6 of Council Regulation 1698/2005), calling on a broad involvement of all stakeholders, including NGOs and environmental authorities in the design and implementation of the Programmes.

For the first time a **Strategic Environmental Assessment** (under the SEA Directive[28]) is required for all national/regional RD Programmes. Usually carried by an independent body (e.g. a consultancy), the SEA checks for possible negative environmental impacts of the Programme and suggests alternatives that offer the 'best deal for the environment'. Both the draft Programme and the SEA are then put out to public consultation in order to give environmental authorities and the public (stakeholders, NGOs, etc.) an opportunity to comment on the programme.

The Commission verifies that the SEA procedure has been respected by requesting that copies of the SEA environmental report are submitted together with the draft rural development programmes (the SEA environmental report can be integrated into the ex-ante evaluation report under Art. 85 of the RD Regulation). The overall aim is to ensure that the Rural Development Programmes are developed in an open and transparent way and that all interested parties have an opportunity to comment and input into their design.

3.1.5 Monitoring and controls

The monitoring and evaluation of the programmes is much stronger than in previous programming periods and should help to assess more accurately whether the programmes are meeting the EU and national priorities. A Common Monitoring and Evaluation Framework is established for this purpose which obliges all Member States to use the same EU indicators[29] so that the results can be aggregated and conclusions can be drawn on whether the EU priorities for RDP are being met.

Examples of biodiversity indicators now used for Axis 2 include:

→ Baseline indicators: Biodiversity – Population of farmland birds, Biodiversity - High nature value farmland and forestry, Biodiversity - Tree species composition
→ Output indicators: Number of supported holdings in Natura 2000 areas, supported agricultural land under Natura 2000
→ Result indicators: Area under successful land management contributing to biodiversity and high nature value farming/forestry
→ Impact indicators: Reversing biodiversity decline, maintenance of high nature value farmland and forestry.

These must be used by all Member States. Member States are also encouraged by the Commission to use additional biodiversity indicators at national level, for instance on butterfly populations and plant species diversity, according to data availability.

[28] *Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, the so called "Strategic Environmental Assessment" – SEA – Directive*
[29] *Commission regulation 1974/2006 – annex VIII*

The results derived from an analysis of these indicators will be important for the reviews of the RDP programmes. Member States may adjust their programmes and measures following their monitoring and evaluation results in order to better target measures if this is considered necessary. Each programme has its own monitoring committee in which environmental (and other) stakeholders are able to participate as members. The Monitoring Committees can also request programme changes to the Managing Authority if they see that the programmes are not delivering on the agreed objectives and priorities.

3.1.6 National and European Rural Networks

The monitoring and evaluation process is supported by a **national rural network** in each Member State. This brings together the organisations and administrations involved in rural development.

These national networks will:

- Identify and analyse the best practices on rural development, provide information about them and organise the exchanges of experiences and know-how;
- Prepare training programmes for local action groups implementing measures under the LEADER Axis in the process of formation and give technical assistance for inter-territorial and trans-national cooperation between local action groups.

In addition, a **European network for rural development**[30] has also been set up at Community level, with the secretariat being provided by the European Commission. The European Network will:

- Collect, analyse and disseminate information on Community rural development measures;
- Collect, disseminate and consolidate at Community level good rural development practice;
- Provide information on developments in the Community's rural areas and in third countries;
- Organise meetings and seminars at Community level for those actively involved in rural development;
- Set up and run expert networks with a view to facilitating an exchange of expertise and supporting implementation and evaluation of the rural development policy;
- Support the national networks and trans-national cooperation initiatives.

[30] http://ec.europa.eu/agriculture/rurdev/eval/network/index_en.htm

4. THE CAP AND NEW OPPORTUNITIES FOR WILDLIFE

4.1 Introduction

As mentioned in previous chapters, the policy framework for halting the loss of biodiversity in Europe is now largely in place and the Habitats and Birds Directives are at the very heart of this process. There is also an increasingly important body of conservation knowledge, backed by real life experiences, to guide us in the type of actions that need to be taken to maintain and restore wildlife and nature in farming areas across Europe.

However, change will only happen if there is a concerted effort from all sectors. This is best achieved by integrating conservation requirements into other policy areas and ensuring that all relevant stakeholders are apportioned a share of the responsibility.

The agricultural, forestry and rural development sectors, in particular, have a major role to play in this regard. Thanks to recent successive reforms of the CAP and the new Rural Development Regulation (2007-2013), a powerful set of policy tools and measures exist to encourage a better integration of biodiversity considerations into farming and forestry practices across Europe. This is in line with the EU's Biodiversity Action Plan for '2010 and beyond' which stresses the need to optimise the role of the CAP in conserving and restoring biodiversity.

The present chapter takes a closer look at the different measures available under Pillars I and II of the CAP which can be used to help conserve the species and habitat types listed under the Habitats and Birds Directives in particular, and biodiversity in general. More details are provided in each of the species reports produced under the Wildlife and Sustainable Farming Initiative[31].

It is beyond the scope of this study to carry out a thorough evaluation of the actual use of these measures and their impact on biodiversity. Nevertheless, this remains a key question.

As this report hopefully demonstrates, there are many tools available under CAP to help conserve and maintain farmland biodiversity but this does not necessarily mean that they are being used to the fullest extent. At the end of the day, it is down to the political will of the Member States and sectors concerned, and their resolve to develop well suited measures that are adequately resourced.

4.2. The importance of agriculture for Europe's biodiversity

Agriculture remains the dominant land use in Europe, accounting for almost half of the total EU-27 land area. Over the centuries, diverse local farming practices have contributed significantly to Europe's biodiversity by creating a wide range of semi-natural habitats in which a rich variety of different species could adapt and evolve. Even now, around half of Europe's wildlife is associated in one way or another with farmland.

[31] http://circa.europa.eu/Public/irc/env/swfi/home

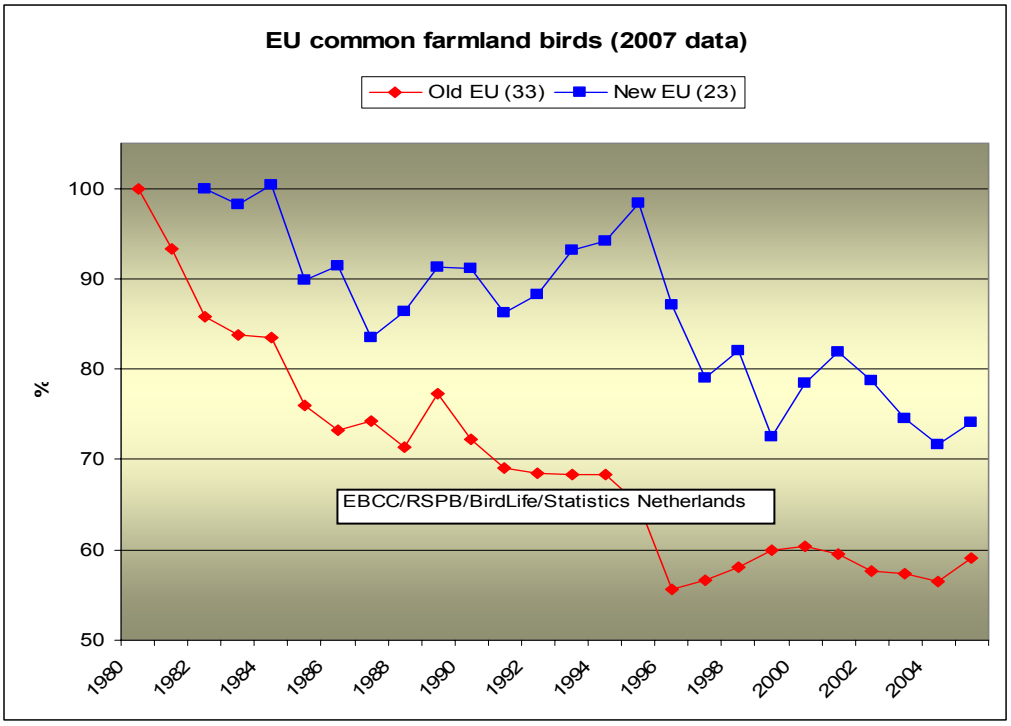
Biodiversity is highest in those areas that use traditional low intensity farming systems such as livestock grazing on semi-natural grasslands or mixed rotational cropping with fallow land. Such farming practices are usually entirely compatible with the needs of the wild animals and plants present - indeed many species are now entirely dependent on the continuation of these activities for their survival.

On a larger scale, they also help create a mosaic patchwork of alternating habitats across the landscape, interspersed by typical farmland features like hedgerows, field margins or pockets of trees, which are all very beneficial for wildlife.

Much of Europe's biodiversity is now heavily dependent upon such farming practices being maintained and wherever possible re-established. This is especially important in the face of their continued marginalisation and abandonnment. Over the last thirty years, there has been a strong drive to intensify, specialise and mechanise farming across much of Europe. This has in turn lead to significant changes in cropping and livestock patterns and the loss of many semi-natural habitats, such as wet meadows or dry grasslands, through large scale irrigation programmes or drainage schemes, amongst others.

The impact of these changes on biodiversity is significant. Of the many bird species which depend on farmland habitats in Europe, 70% are now endangered. And it is not just the rare or specialist species that are suffering, common birds like the skylark or cirl bunting are also showing a dramatic decline. Recent surveys by Birdlife International indicate that common farmland bird populations have fallen by over 40% in the last 20 years.

The driving forces behind these changes are varied but have, at least in the past, been heavily influenced by the CAP which provided guaranteed prices, stimulated production and agricultural intensification/specialisation over large parts of EU-15.



4.3. The CAP and opportunities for wildlife

In view of both the positive and the negative effects of agriculture on biodiveristy and its position as a dominant land use in Europe, the CAP can play a major role in delivering the EU's commitments to halting the loss of biodiversity by preventing further damage or loss of existing areas of high nature value and promoting instead more sustainable forms of farmland management.

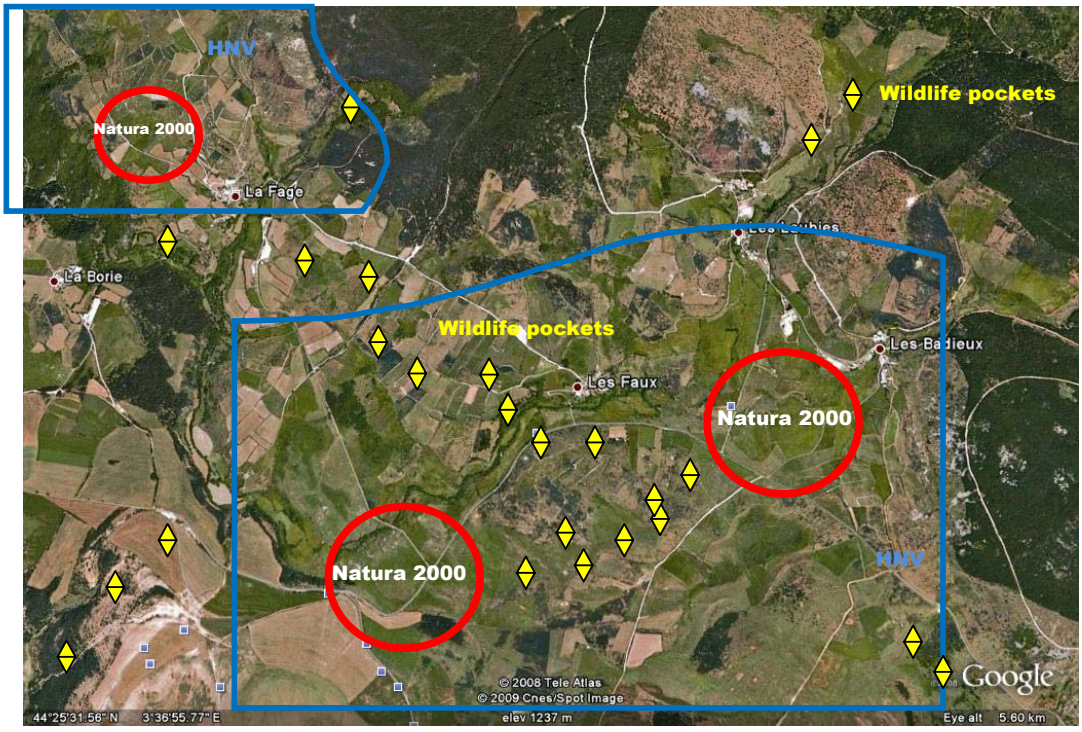
Attention should be paid in particular to:

- maintaining and restoring habitats which are dependent on agricultural activities within Natura 2000 sites to ensure the species and habitat types for which the sites are designated reach a favourable conservation status;

- supporting existing HNV farming systems. Such systems provide an important public service that is rarely rewarded in the market place. Without public intervention, HNV farmland runs the risk of being increasingly marginalised and abandonned;

- conserving and re-creating wildlife and farmland features within the wider countryside and encouraging the introduction of more wildlife friendly farming practices wherever possible such as leaving untreated strips around field margins and water courses etc… This will promote better connectivity between existing habitats and so ensure that ecosystems are more resilient (something that cannot happen if there are merely protected sites in a sea of intensive landuse);

- avoiding funding measures that are incompatible with EU biodiversity policy goals and targets.



Stylised view of a nature friendly agricultural landscape with compatible farming practices in place

4.4 Pillar I : Cross compliance

Over the last 15 years, steps have been taken to reform the CAP in order to integrate environmental concerns into the agricultural policy. Since 2003, direct payments under PillarI have been progressively decoupled from production. At the same time, the principle that full payment of CAP aid should be linked to compliance with certain rules ("*cross compliance*") was introduced.

The linking of payments to certain rules in the scope of cross compliance serves to incorporate, in common market organisations, basic standards for the environment, food safety, animal health and welfare and good agricultural and environmental condition. Thus, after years of providing price guarantees and area based production incentives, CAP payments should now no longer have much bearing on production decisions by farmers and should instead encourage a more sustainable form of agriculture.

Today, production aids to farmers have been largely replaced with a single farm payment scheme under Pillar I and are linked to compliance with a number of environmental, animal welfare and food safety standards, mainly from existing legislation that also applies to farmers not receiving CAP payments. Cross compliance is a horizontal CAP tool and applies to direct payments (Pillar I) from 2005. It has gradually been extended to other CAP payments, such as Pillar II payments (2007) and certain wine payments (2008).

More specifically, every farm receiving CAP payments covered under cross compliance, irrespective of whether they produce or not, must comply with the following in order to receive full payments[32]

→ Statutory Management Requirements (SMRs);
→ Good Agricultural and Environmental Condition (GAEC).

Failure to meet these standards can result in a reduction in payments or even their complete cancellation. Withdrawal of CAP payments under cross compliance is also additional to the sanctions under the specific national legislation.

4.4.1 Statutory Management Requirements (SMRs)

Altogether, there are 19 SMRs that farmers have to comply with. These relate to selected articles concerning agricultural activities and agricultural land in the EU Directives and Regulations on the protection of the environment, public, animal and plant health and animal welfare.

They include certain articles of the Birds and Habitats Directives as transposed into national legislation. The aim is essentially to contribute to farmer's compliance with pre-existing legislation and increase their awareness and understanding of these requirements, not to set new standards or obligations nor to replace specific national legislation.

[32] These are the latest conditions following the 2008 CAP Health check. Ref: Council Regulation (EC) N° 73/2009

In the case of the **Birds Directive** (SMR 1) the requirements resulting from the following articles must be respected by farmers (see chapter 2 for more details about what the articles require):

→ Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;

→ Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;

→ Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

In the case of the **Habitats Directive**, (SMR 5) the requirements resulting from the following articles must be respected:

→ Article 6: the necessary conservation measures within Natura 2000 to restore and maintain the species and habitat types for which the site is designated and to prevent their deterioration, destruction or significant disturbance;

→ Article 13 (1)(a): establish a general system of protection for wild plants listed in Annex IV (b), prohibiting in particular, the deliberate picking, collecting, cutting, uprooting or destruction of such plants in their natural range in the wild.

For both Directives, it is up to the Member States to determine how these provisions are transposed into specific national or regional legislation and turned into obligations aimed at farm level. Therefore legal requirements based on the above mentioned articles may vary between the Member States in both national and regional laws and this variation will be reflected in the requirements under cross compliance.

4.4.2 Good Agricultural and Environmental Condition (GAEC)

With the decoupling of farm payments from production, there was a widespread concern that agricultural land would be abandonned at an even greater rate than before, especially in less viable farming systems, including HNV farming. The second set of standards introduced under cross compliance aims to avoid this massive abandonment, and to ensure that agricultural land is maintained in good agricultural and environmental condition even when it is no longer used for production purposes.

Again, it is up to Member States to define minimum standards at national or regional level taking into account the local conditions regarding one or more of the following environmental issues: soil erosion, soil organic matter, soil structure, minimum level of maintenance, and protection and management of water.

Several GAEC standards are potentially interesting from a biodiversity perspective, for instance the compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture;
- Establishment of buffer strips along water courses.

Member States can also voluntarily set standards, to be chosen from a list provided in the EU legislation, for instance[33]:

– Minimum livestock stocking rates or/and appropriate regimes;
– Establishment and/or retention of habitats;
– Prohibition of the grubbing up of olive trees;
– Maintenance of olive groves and vines in good vegetative condition;
– Retain terraces.

Also under GAEC, Member States must ensure that the amount of land that was under permanent pasture at a given time is maintained under permanent pasture. The reference dates are as follows:

– For old EU-15 Member States it is the date provided for the area aid applications for 2003;
– For the new Member States which acceded in 2004 (other than Bulgaria and Romania) it is 1 May 2004;
– For Bulgaria and Romania it is 1 January 2007.

Member States are obliged to establish Farm Advisory Systems, which provide advice on what farmers must do in practice to comply with cross compliance standards. Where Member States chose to provide for it in their Rural Development Programmes, farmers can be reimbursed some of the costs of using such services. This can be very helpful in explaining issues that may be unfamiliar to farmers, including the requirements of the Birds and Habitats Directives.

In conclusion, cross compliance is focussed on basic standards, many of them linked to pre-existing legislation (SMRs), to ensure that public money is not spent on practices that are inadvertently in conflict with EU nature and other legislation. In addition, it raises awareness about the provisions of existing laws such as the Habitats and Birds Directives amongst farmers and contributes to their implementation across the EU.

Cross compliance is also important because it sets the reference level (baseline) for certain area related measures under Axis 2, for instance agri-environment schemes. These measures should go beyond a reference level including *inter alia* the standards of cross compliance.

In this way Pillar I and Pillar II are directly linked – if cross compliance standards change they have a direct impact on Pillar II measures. If a standard or requirement is included in the scope of cross compliance, it is not possible to provide incentives under rural development or recover the costs incurred and/or income foregone resulting from the obligations specified by this standard or requirement.

[33] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

If a farmer fails to respect these standards under Pillar I they stand to loose not just direct farm payments but also payments under Pillar II and certain wine payments. Having the same set of standards for all farmers under different CAP payments offers a clearer, more transparent system that is easier to control and monitor.

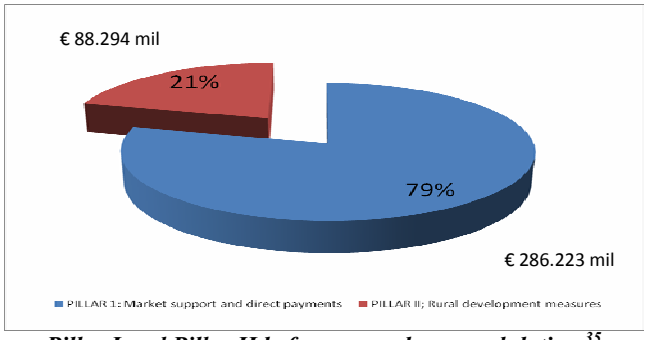
However, experience so far has shown that whilst bird and plant species protection provisions have been included in cross compliance in most Member States, the legal obligations to farmers arising from site protection provisions within the Natura 2000 Network seem to be rather weak and general in several cases. The lack of detail or precision will make them much harder to apply and control, this is true both for the specific legal sanction regimes and for the reductions of payments under cross compliance. Also, Member State authorities have yet to establish conservation objectives and measures for many Natura 2000 or draw up Natura 2000 management plans, in which the detailed meaures related to farmland are usually specified[34].

Finally, it is worth noting that the general GAEC requirement to ensure that the total area of permanent pasture does not drop below 90% of a certain reference level is not linked to the nature value of the pastures. It is a quantative rule, aiming at avoiding massive conversion of permanent pasture into arable land and has importance, for instance, in the framework of action against climate change (ploughing up of land which has been grassland for a long time could result in significant carbon losses).

This means that this quantitative GAEC rule will not prevent the removal of wildlife rich grasslands in one area of the country as it may be compensated for by a fertilised pasture in another area of considerably less biodiversity interest. However, Member States should protect the quality of permanent pastures with high nature or environmental value under other rules as the specific legal requirements applicable to Natura 2000 sites, which are also taken up under cross compliance (SMR 1 and 5). They may also define the compulsory GAEC standard "Protection of permanent pasture" in that regard.

4.5 Pillar II: Rural Development Measures

As described in chapter 3, Pillar II of the CAP is embodied by the European Agricultural Fund for Rural Development EAFRD (2007-2013). Its budget is significantly smaller than that of Pillar I.



Share of EU funds between Pillar I and Pillar II before compulsory modulation.[35]

[34] *The requirements applicable to farmers can also take form of legal or adminsitrative regulations applicable to the specific Natura 2000 site. Once these are determined they apply under specific regulations, and consequently under cross compliance.*

[35] *The total budget for SPS is less than the budget for the first pillar as it excludes expenditure for export subsidies and market interventions. Source: Budget SPS from: Council Regulation 1782/2003 (consolidated version - August 5, 2006) and Agra Europe (2007), 'Threat of SPS cuts rises as NMS accede', Agra Europe Weekly, January 12; Budget second pillar from: EC (2007), EU support for rural development 2007-2013; Pre-allocated funding under Heading 2 'Natural Resources' of the Financial Framework, Brussels: European Commission.*

Because of the large disparities in funds between Pillars I and II, concern has been expressed that the money allocated to Pillar II would not be enough to adequately resource the measures proposed under the RDR. Also that the larger amount of funds allocated to Pillar I could continue to encourage certain farming practices that are at odds with the EU's biodiversity objectives.

Recognising the need to reinforce the EU rural development measures, 'compulsory modulation' was introduced under the 2003 CAP reforms[36] thereby providing a means to transfer CAP funds from Pillar I to Pillar II. Since 2005, all direct payments above 5000€ per farm are being reduced in the following manner: by 3% in 2005, 4% in 2006 and 5% from 2007 onwards until 2012[37]. This transfer of funds should generate almost €9 billion in additional funds for Pillar II within the EU-15 between now and 2013.

The changes introduced under the recent health check of the CAP expanded the menu of options available under Article 68 of the direct support legislation (Pilar I) so that it allows Member States to retain up to 10% of their national ceilings for direct payments to provide support to specific sectors. Funds can now be used for, inter alia: protecting the environment, top-ups to existing entitlements in areas where land abandonment is a threat, and payments for disadvantages faced by specific sectors in environmentally sensitive areas.

The health check of the CAP allows also for an additional increase in modulation rates, over and above the existing rates, for the EU-15, of 5% by 2012 for all farms receiving more than €5000 in direct payments. This rate will increase gradually, starting with a 2% increase in 2009; followed by a 1% increase in subsequent years. In addition, farms receiving over €300,000 in direct payments for farms will be subject to an additional 4% modulation. It is estimated that the higher rates of modulation will provide an additional €3.24 billion (on top of the original €9 billion) for Pillar II.

4.5.1 Distribution amongst Axes 1-4

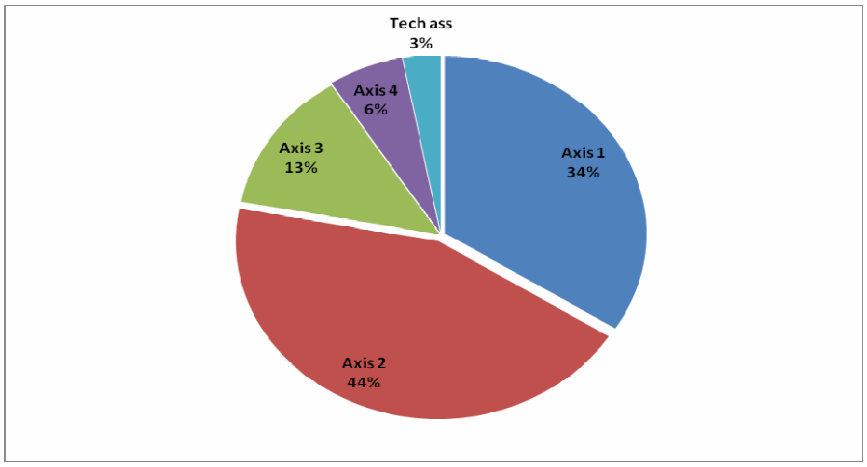
In the meantime, Member States and regions are required to ensure that each of the 4 Axes under Pillar II receive a minimum proportion of the existing budget:

- 10% for Axis 1: improving the competitiveness of agriculture and forestry;
- 25% for Axis 2: improving the environment and the countryside;
- 10% for Axis 3: improving the quality of life and diversification of the rural economy.
- 5% for Axis 4: LEADER

This gives the Member States sufficient margin to decide where to allocate the remaining 50% percent of the EAFRD budget in function of their needs and situations. It should also be noted that in contrast to Pillar I, Pillar II is co-financed by the Member States which means there is a significant additional source of funds for rural development measures.

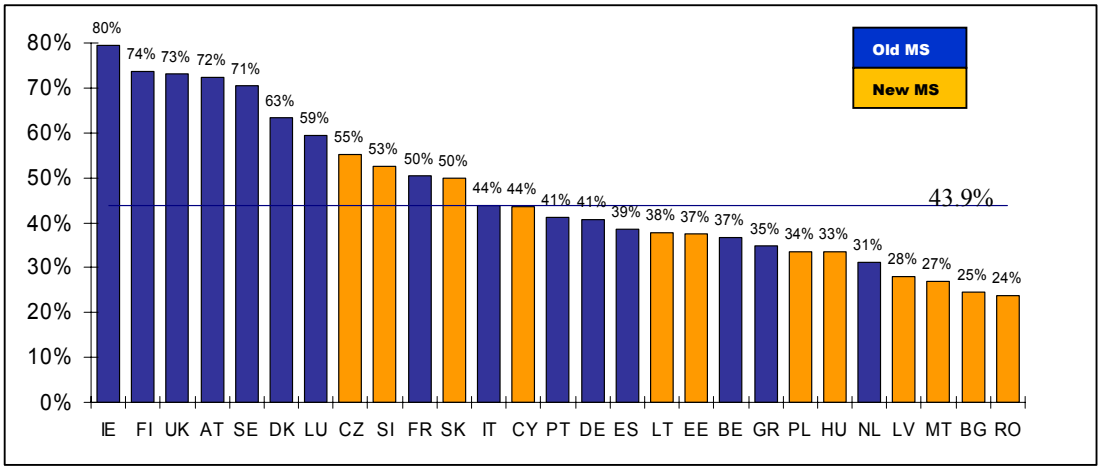
In reality, most Member States have opted to allocate the majority of the EAFRD funds to Axis 1 (on average 34%) and Axis 2 (on average 44%). Some countries have also decided to allocate pro-rata more national co-financing to these Axes. Thus the overall budget available is actually even greater than the 78 million originally allocated to EAFRD (before modulation).

[36] *Fact sheet available under http://ec.europa.eu/agriculture/capreform/infosheets/modul_en.pdf*
[37] *Portugal and UK have been decided to apply additional volunty modulation rates of up to 20% between Pillars I and II*



Allocation of EAFRD money according to axis (and for technical assistance)
(DG AGRI power point presentation 18.11.2008 WS in project Brussels/European Commission)

The emphasis given to Axis 2 (which is the most relevant and important axis for wildlife and biodiversity) across the 94 Rural Development Programmes varies significantly. Looking at this from the perspective of each Member State (i.e. consolidating figures for regional programmes in federalised states) it can be seen that five countries (IE, FI, UK, AT, SE) have allocated over 70% of the budget to Axis 2. At the other end of the spectrum, a total of seven countries have allocated less than 35% to Axis 2 (PL, HU, NL, LV, MT, BG, and RO). Six of those are new Member States who seem to prefer placing the emphasis on Axis 1- improving competitiveness.



(Axis 4 has been split and redistributed to the other relevant axes)

EAFRD allocation under Axis 2 as part of total funds by Member State
(DG AGRI power point presentation 18.11.2008 WS in project Brussels/European Commission)

Each Axis contains a series of different measures under which support payments of different kinds can be offered on a voluntary basis to land managers - be they landowners, foresters, farmers or other land users (such as land owning conservation organisations). A number of these measures have the potential to deliver significant benefits for species and habitats protected under the two EU Nature Directives in particular and for biodiversity in general. These are explored further below.

Beforehand it is worth recalling that the agri-environment payments offered to land managers must be based on real costs – i.e. those that are related to income foregone, compensation for costs incurred in carrying out additional activities, and transaction costs. The activities foreseen must also go beyond those set by cross compliance standards.

This contrasts with the past when payment level could be set at a rate that would encourage farmers to join a particular scheme (i.e. include up to 20% top-ups as incentive payments). Such an approach is no longer possible under WTO rules as it could be considered as a trade-distorting subsidy (outside the 'Green Box').

4.5.2 Measures under Axis 2 – improving the environment and the countryside

A total of 13 different measures are available under Axis 2: six are geared towards agricultural land and seven are for forestry land. Only the agri-environment schemes are obligatory, in the sense that all Member States must use this measure in their Rural Development Programmes. All the other measures are optional. The different measures can also be cumulative (i.e. a farm can benefit from several measures at once).

The following RD measures for the sustainable use of ***agricultural land*** are of particular interest for wildlife and nature conservation:

- **Natural Handicap Payments in mountain areas and payments in other areas with handicaps** (Article 37 of the Rural Development Regulation 1698/2005). This relates to the concept of Less Favoured Areas (LFA) which dates back to 1975. It provides 'compensatory allowances' to farmers in mountainous areas or in other areas where the physical landscape results in higher production costs. Payments are granted to farmers who undertake to pursue their farming activities in the LFA area for at least five years.

  So like other measures described below, payments should compensate for farmers' additional costs and income foregone related to the handicap for agricultural production in the area concerned. The payments are therefore related to farming activities going beyond the "cross compliance" or the basic standard to obtain single farm payment. The farming practice funded needs to be continued for at least five years.

- **Natura 2000 payments and payments linked to Directive 2000/60/EC,** (Article 38 of RDR) are granted annually and per hectare of Utilised Agricultural Area (UAA) in order to compensate for costs incurred and income foregone resulting from legal or administrative restrictions on farming within Natura 2000 areas and river basin districts. The main objective with the measure is to secure or improve the conservation status of habitats and species covered by the Natura 2000 Network and/or secure implementation of the Water Framework Directive.

- **Agri-environmental schemes (AE schemes)** (Article 39 of RDR) compensate for voluntary commitments to apply farming practices beneficial to the environment that go beyond the relevant mandatory standards (cross compliance, plus minimum requirements for fertilisers and pesticides and other relevant mandatory requirements). The schemes can run for 5-7 years and are designed to cover additional costs and income foregone incurred as a result of these voluntary commitments. Even longer support periods can be given under certain conditions.

Axis 2 Measures: Improving the Environment and the Countryside		
Measure	**Basic Conditions**	**Level of Support**
Natural Handicap Payments (Art 37) The current definition of '*Less Favoured Areas* (LFA), is based on three types of areas : - Mountain areas (defined by altitude and slope) - Other or intermediate LFA (partly defined on socio-economic criteria) and - Areas with specific handicaps for example wetlands (limited to a maximum 10% of a MS territory)	Payments to compensate costs and income forgone resulting from disadvantages in the areas concerned. Support granted where farmers undertake to pursue farming in the area for at least 5 years.	Minimum handicap payment €25/ha of UAA, Maximum handicap payment €250/ha of UAA for mountain areas, Maximum handicap payment €150/€ for areas with other handicaps
Natura 2000 payments for agriculture (Art 38)	Payments to compensate costs and income forgone resulting from legal and/or administrative restrictions on farming in Natura 2000.	Initial Max of €500 per ha for a period not exceeding 5 years, Normal max of €200 per ha (*)
Agri-environment payments (Art 39 - compulsory measure)	Support is granted for commitments to follow prescribed practices for 5-7 years or longer where justified. Prescriptions must go beyond a baseline (cross compliance, plus minimum requirements for fertilisers and pesticides and other relevant mandatory requirements) Support covers income forgone and additional costs resulting from commitment plus (where necessary) transaction costs.	Max. levels of support : ▪ Annual crops €600/ha ▪ Specialised perennials €900/ha ▪ Other land uses €450/ha ▪ Local breeds €200/LU[38] (*)
Non Productive Investments for agricultural land (Art 41)	Support is granted for investments linked to Agri-Environment aims and/or for on-farm investments enhancing the public amenity of a Natura 2000 area.	No aid limits set down
First establishment of agro-forestry systems (Art 44)	Support is granted to create agro-forestry systems combining extensive agriculture and forestry systems.	80% of eligible cost depending on location in LFAs and Natura 2000 areas; 70% elsewhere
Natura 2000 payments for forests (Art 46)	Support covers cost incurred resulting from legal and/or administrative restrictions on the use of the forest in Natura 2000	Min. €40/ha, Max. €200/ha (*)
Forest-environment payments (Art 47)	Support is granted for forest-environment commitments going beyond national mandatory standards and running for 5 years, support covers additional costs and income foregone	Min. €40/ha, Max. €200/ha (*)
Non Productive Investments for forestry land (Art 49)	Grant of non-productive support is linked to the achievement of commitments undertaken under the forest-environmental measure, or in order to enhance the public amenity of the area concerned.	No aid limits set down

[38] *Livestock Unit*

(*) These amounts may be increased in specific cases specified in Annex to RDR

- **Support for non productive investments**: (Article 41 of RDR) can cover a range of investments such as on-farm investments linked to AE schemes or which enhance the public amenity value of a Natura 2000 area or other high nature value area. This measure is potentially interesting because it has no ceiling on payment rates and few conditions are attached, according to the Rural Development Regulation. It is up to Member States to define further the details of implementation.

The following RD measures for the sustainable use of ***forestry land*** are specifically of interest for wildlife and nature conservation:

- **Natura 2000 payments** (Article 46 of RDR) - annual payments per hectare of forest to private forest owners or associations in order to compensate for costs incurred and income foregone resulting from the restrictions on the use of forests due to the implementation of Habitats and Birds Directives in the area concerned. The objective can be to secure or improve the conservation status of both habitat types and species on the Annexes to the Habitats and Birds Directives. Examples on this are provided later in the document.

- **Forest-environment payments** (Article 47 of RDR) per hectare of forest to cover forest-environmental commitments going beyond the relevant mandatory requirements. These commitments shall normally be undertaken for a period between five and seven years. The payments shall cover additional costs and income foregone resulting from the commitment made.

- **Support for non-productive investments** (Article 49 of RDR) in forests: (a) linked to the achievement of commitments undertaken pursuant to forest-environment payments, or other environmental objectives; (b) which enhance the public amenity value of forest and wooded land of the area concerned.

Some of the other measures could also be used such as Article 44 of RDR which supports farmers to create agro-forestry systems combining extensive agriculture and forestry systems. These could for instance be used to re-establish certain habitats such as dehesas and montados or wooded pastures.

4.5.3 Measures under Axis 1 – improving competitiveness

There are a total of 16 measures available under Axis 1. The vast majority are very much focussed on increasing competitiveness, for instance measures aimed at restructuring and developing the physical potential of farms (modernising agricultural holdings, consolidating farmland into bigger farm holdings, installing irrigation systems, replacing old irrigation systems with more efficient ones…).

The potential for biodiversity is therefore very limited. Indeed the onus will be on ensuring that the activities under Axis 1 do not run counter to biodiversity objectives.

Nevertheless, there are two measures that could eventually be used to help support nature and biodiversity objectives:

- **Vocational training and information actions:** (Article 21 of RDR) could be used to disseminate knowledge and good practice experiences on active conservation management measures that are beneficial for rare species or habitats both within and outside Natura 2000 areas or that could help make AE schemes more effective. They could also be used to train farmers in devising and marketing products based on nature friendly farming practices;

- **Advisory services** (Article 24 of RDR): the cost of obtaining advisory services on how to meet the minimum cross compliance requirements, such as those under the Habitats and Birds Directives can be reimbursed to farmers, foresters and other land managers.

4.5.4 Measures under Axis 3 – quality of life and economic diversification

A total of eight measures are available under Axis 3 to help diversify the rural economy and improve the quality of life in rural areas. Several of these measures might be used in a way that could benefit nature. For instance, the measure to support diversification into non-agricultural areas has allowed some farmers to develop new activities in restoring and repairing old stone walls which could be beneficial for wildlife. The measure designed to encourage tourism activities (for instance nature based tourism) could incite land users to participate in conservation actions such as monitoring or restoration and surveillance work within Natura 2000 sites.

However, the measure most directly related to biodiversity and Natura 2000 is the following:

- **Conservation of rural heritage:** (Article 57 of RDR). This can be used to cover the cost of drawing up management plans for Natura 2000 sites, carrying out habitat maintenance or restoration measures (for instance restoring wetlands) in areas of high nature value, or launching environmental awareness campaigns (for instance on a rare species).

4.5.5 Axis 4- LEADER

The 'bottom-up' LEADER approach can be useful in developing local area-based and/or multi-sectoral development strategies that could help, for instance, to integrate nature conservation requirements into strategic local land use planning. They could also encourage public- private partnerships and test innovative approaches.

In addition to the measures available under Pillar II of the CAP, the recent health check of the CAP has expanded to a menu of options available under Article 68 of the direct support legislation[39] which allows Member States to retain up to 10% of their national ceilings for direct payments under Pillar I to provide support to specific sectors. Funds can now be used for, inter alia: protecting the environment, top-ups to existing entitlements in areas where land abadonment is a threat, and payments for disadvantages faced by specific sectors in environmentally sensitive areas.[40]

[39] *Council Regulation (EC) No 73/2009 of 19 January 2009*
[40] *Cf IEEP CAP Health Check Review: Cross Compliance available under* http://cap2020.ieep.eu/2008/12/2/ieep-cap-health-check-review-cross-compliance?s=2&selected=latest

PART II

5. THE CONSERVATION OF SELECTED SPECIES OF WILDLIFE

5.1. An introduction to the species factsheets

The first part of this report looked at the policy context for ensuring a better integration into the Common Agricultural Policy (CAP) of the conservation objectives of the Habitats and Birds Directives in particular, and of biodiversity conservation in general. It also presented the various tools and measures available for achieving this under the CAP.

This second part now focusses on the 12 farmland and forest species that were selected for closer examination under the Wildife and Sustainable Farming Initiative. Concise species fact sheets have been developed highlighting the key conservation requirements of each species in a farming and forestry context.

They are based on the more detailed species reports which are available on CIRCA website for this Initiative http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title.

Each fact sheet presents:

- A general description of the species;
- Its habitat requirements;
- The key threats to its conservation;
- Farming (forestry) practices that are favourable for the species;
- Obligations arising out of the EU Nature Directives for the species;
- CAP measures that could be used to benefit the species conservation;
- Practical examples for the conservation of the species under the Rural Development Programmes (RDPs) in different countries and regions.

5.2 The selection of species to be targeted

Considering the large number of animals and plants that are associated with farmland and forests, the choice of species under the Initiative was difficult, and effort was made to reflect as much as possible the range of different farming and forestry conditions across Europe and the diversity of wildlife associated with these areas.

The following criteria were taken into account when making the final selection:

- There should be a good coverage of different taxonomic groups ranging from birds, mammals, amphibians and reptiles to invertebrates;
- Most of the species should be considered of 'European importance' and listed in one of the Annexes of the two EU Nature Directives;
- They should be representative of a range of different farming (forestry) habitats and have a good geographical spread across parts of Europe;
- They should be, as far as possible, good wildlife indicators – measures for their conservation should benefit a range of other wild species;
- Collectively, they should be dependent upon, and reflect, the wide range of different farming practices that exist across different regions of Europe;
- Evidence of practical conservation measures which have already been undertaken in a farming /forestry context, preferably under RDP.

It is also worth pointing out that whilst the fact sheets focus on 12 specific species, they should nevertheless also be of interest to people wishing to develop RDP measures for other wildlife species and habitats as well. The fact sheets illustrate some of the common concerns that arise in relationships between farming/forestry practices and wildlife.

As a result some of the solutions proposed or RDP measures adopted by different Member States may provide some useful food for thought as to how to develop similar measures for other species or habitats of conservation concern.

To facilitate this comparison, each fact sheet has a specific section dealing with other species that could benefit from the measures proposed. Of course, each species has its own particular habitat requirements that are unique to its ecology and lifecycle. Nevertheless there are a sufficient number of points in common to allow one to consider that the management solutions proposed for one are very likely to also benefit the other species mentioned. In listing these other species we have mainly focussed on species listed in the Annexes to the Habitats and Birds Directives, but some other examples are also given where appropriate.

The following table presents an overview of the 12 species finally selected:

Species	Typical habitat	Geographical range	Main threats	Key Conservation measures
Great bustard, *Otis tarda*	Dry grasslands and mosaic of crops and grasslands	Core population inside EU in Spain and Portugal. Also present in Hungary, Austria, Germany, Slovakia	Agricultural intensification, use of pesticides etc, change of crops, overgrazing, collisions with fences, overhead powerlines, intrastructure development, and human disturbance.	Preserve non-intensive mixed farming systems, prevent significant land use changes, adapt existing agricultural practices to life cyle of bustard (eg not burning stubble, avoid night-time harvesting etc.) limit pesticide/fertiliser use, promote extensification programmes, planting of winter cereals & leguminous crops, and ensure appropriate grazing.
Large blue butterfly, *Maculinea arion*	Dry grasslands	22 EU countries, absent from Iberian Peninsula and the islands of Cyprus and Malta	Loss of habitats, farm intensification, land abandonment, changes in grazing, habitat fragmentation, afforestation.	Maintain traditional low intensity farming, set appropriate grazing levels, remove invading scrub, limit pesticide/fertiliser use, reconnection of existing patches of suitable habitats and planting of *Thymus* species.
Corncrake, *Crex crex*	Meadows	All EU countries except Iberian Peninsula, Greece, Cyprus and Malta	Loss of habitats, farm intensification, land abandonment, and early mowing.	Maintain traditional low intensity farming, encourage large mosaic structures of fields and meadows, late mowing, remove invading scrub, prevent drainage, and avoid excessive grazing.
Meadow viper, *Vipera ursinii*	Meadows	Isolated populations in France, Hungary, Italy, Romania, Bulgaria and Greece	Habitat loss and fragmentation, overgrazing, land abandonment, burning, hay cutting, removal of juniper bushes, pollution, irrigation, persecution.	Prevent further loss of or damage to suitable habitats, appropriate grazing levels, hay cutting by hand, preservation of small bushes like juniper, restrict pesticide/fertiliser use, maintain grass strips or areas of fallow land, prevent irrigation, and control burning.

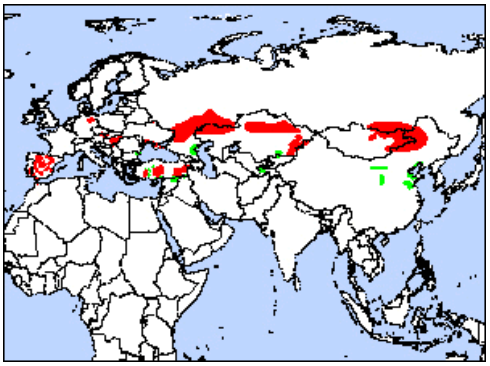
Species	Typical habitat	Geographical range	Main threats	Key Conservation measures
Yellow-bellied toad, *Bombina variegata*	Wetlands (and forests)	Restricted to 15 Central and South Western EU countries	Loss, fragmentation and/or degradation of suitable habitats, forestry work during reproduction periods, drainage or water abstraction, lack of grazing, pollution.	Maintain or restore breeding ponds in forest and grasslands, maintain or restore dispersal corridors and sites suitable for hibernation, maintain cattle grazing and other extensive grassland management, avoid eutrophication and pollution of breeding ponds, avoid forestry work during reproduction periods.
Bittern, *Botaurus stellaris*	Wetlands (reedbeds)	Present in all EU countries except Cyprus, Malta, Ireland & Luxemburg	Loss, degradation, fragmentation of habitat, water pollution, inappropriate reed harvesting, predation, human disturbance.	Prevent further loss of reedbed, avoid excess water abstraction/ drainage, limit use of pesticides etc., avoid disturbance during critical periods, adjust reed cutting times and control burning of reedbeds, restore reedbeds, encourage large mosaic structures of reedbeds.
Hamster, *Cricetus cricetus*	Arable land	Present in 12 Central and Eastern EU countries	Changes in agricultural crops, simplification of rotations, improved harvesting techniques, early tillage, abandonment of cultivation, use sewage sludge and irrigation.	Maintain existing crops and crop diversity, use late varieties of cereals, adapt existing farming practices to make them hamster friendly, maintain field edges and unharvested strips of cereal, ban use of rodenticides, re-introduce suitable crops, avoid irrigation and application of sewege sludge, regulate exploitation/ persecution.
Skylark, *Alauda arvensis*	Arable land	Present in all EU countries except Cyprus and Malta	Reduced crop diversity, autumn sowing instead of spring sowing, farm intensification/ abandonment, increased use of pesticides/fertilisers, inappropriate harvesting techniques, unsustainable exploitation.	Promote organic farming, maintain or increase crop diversity, maintain or increase spring sowing of cereals, leave cereal stubbles over winter, promote extensive grassland management, maintain arable pockets in pastoral areas, leave areas as set-aside, leave unsown patches in cereals, reduce pesticide use, reduce irrigation to minimum, control exploitation.
Ortolan Bunting, *Emberiza hortulana*	Occurs in a variety of habitats inside distribution area like extensive arable land with single trees, orchards, forest margins amongst others	Present in many Southern, Eastern and Central EU countries but absent in Benelux, Denmark, UK and Ireland	Loss of habitat, fragmentation, degradation, farm intensification, abandonment, use of pesticides, unsustainable exploitation.	Maintain or develop a habitat mosaic, maintain non-intensive arable and mixed farming systems, maintain or develop unfarmed features, prevent land abandonment, prevent conversion to intensive cropping systems or afforestation, restrict or prevent use of fertilisers, pesticides etc, prevent scrub invasion, ban the capture and killing of the species.

Species	Habitat	Geographical range	Main threats	Key Conservation measures
Scops owl, *Otus scops*	Extensive agri-pastoral systems especially with old trees or patches of bushes, open forest types and open nature types with hollow trees. Variation througout distibution area	Present in many Southern and Eastern EU countries	Loss of suitable habitats, intensification of agricultural or forestry practices, removal of hedges, walls, grassy patches, individual tree lines or clusters, high levels of pesticide, traffic.	Maintain traditional agro-pastoral mosaic landscapes, preserve traditional orchards and olive groves, retain semi-natural elements in traditional landscapes, maintain appropriate grazing or mowing levels, restrictions or prohibition in use of pesticides and fertilisers.
Great capricorn beetle, *Cerambyx cerdo*	Forests and veteran trees	EU countries but largely absent from North of Europe and extinct in some parts	Habitat loss, lack of dead and decaying wood and old trees, fires, persecution.	Maintain diverse forest structure with old veteran trees and plenty of dead and decaying wood, maintain grazing in wooded glades, prevent persecution.
Capercaillie, *Tetrao urogallus*	Forests	Present across North Eastern Europe and isolated pockets in most major EU mountain ranges.	Habitat loss, degradation & fragmentation, intensification or abandonment of forest practices, pollution, over grazing, over hunting, collisions with fences, human disturbance.	Selective forestry practices (on rotation) sensitive to species' needs and aimed at creating a diverse forest structure with open patches, reconnection of isolated forest habitats, refuges, removal of fences, control of exploitation, control of grazing.

The individual species factsheets are presented in the following pages, they can also be downloaded individually from the DG ENV nature homepage.

Great Bustard *Otis tarda*

Birds Directive – Annex I



Otis tarda breeds in Europe, Turkey, central Asia, Russia and as far east as China[41]. Spain is its stronghold in the EU.

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present			?											
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present									?					

Ro, (?): Nearly extirpated

SPECIES INFORMATION

ECOLOGY

- The great bustard is a large gregarious species, commonly found in flocks. For most of the year, males and females live in separate groups. Males can weigh up to 15 kilos, females are much smaller (ca 4-5 kilos);
- At the end of winter, males concentrate in display areas known as 'leks' to attract females. They disperse again once they have finished breeding;
- Females are solely responsible for choosing nest sites, incubating the eggs and rearing chicks;
- Egg laying occurs in April-May, and in June in colder north-eastern parts of the range. Females normally lay two eggs which are incubated for ca 25 days. The chicks usually stay with the females for about a year until the next breeding cycle;
- The nest is a simple depression on the ground, usually situated in the vicinity of the lek site. They are often located in patches of bare soil in cereal fields or grasslands;
- Bustards are not great flyers. Young males disperse some 5-65km from the site where they were born whilst females will usually only disperse 0,5-5 km from their natal nest;
- Young birds will often aggregate in areas already occupied by other bustards rather than settle in other unoccupied patches even if these other areas offer more favourable habitat conditions;
- Most great bustard populations in Europe are resident. Some populations may however migrate short distances (5-200 km) from breeding to wintering grounds and back in search of food and more clement weather conditions;
- Great bustards are omnivorous and opportunistic feeders. They usually forage in cultivated areas and depend on leguminous crops such as clover, alfalfa, black mustard and turnip, which constitute their main food source in the winter along with seeds (of wheat and barley) found on the ground after harvesting. In summer the diet is more diverse, with 40% being made up of invertebrates.

[41] * *Map and drawing courtesy of Birdlife: http://www.birdlife.org/datazone/species/index.html*

HABITAT REQUIREMENTS

- The great bustard is traditionally a dry grassland/steppic species but in Europe it is now found almost exclusively in flat open agricultural land, especially traditional extensive farmland;
- Birds in Iberia inhabit mixed forms of pasture, arable and fallow land, while those in Hungary live in steppic grasslands, pastures and semi-natural grasslands (puszta) intermixed with agricultural land;
- A certain amount of fallow land (e.g. fallow plots, set-aside plots, field margins, etc) is necessary to provide food and cover;
- Wintering habitat consists mostly of large fallow plains of leguminous crops such as alfalfa, clover, rape or other types of crucifers;
- Studies have shown that great bustards will preferentially select stubble fields, but will avoid ploughed or uncultivated areas, or any areas with roads, power lines or other human artifacts;
- Great bustards show strong fidelity to sites already used by other bustards (con-specific attraction), even if suitable habitat is available elsewhere. This may limit the re-colonisation of previously occupied or newly created sites.

THREATS

Although the great bustard has a wide range, its population in Europe is now highly fragmented, surviving only in relatively isolated pockets in a few EU Member States (half the EU population is found in Spain). The threats are relatively well known :

- Agricultural intensification: the most critical threat comes from continued habitat loss resulting from ploughing up grasslands, intensifying cereal production to mono-cropping or permanent crops, and irrigating dry culture land;
- Infrastructure development: other land use changes such as afforestation, construction of roads, powerlines, wind farms, housing etc. in or near the species range also causes habitat loss and significant disturbance leading to a reduced breeding success;
- Application of certain agricultural practices: the use of herbicides, pesticides and fertilizers in core bird habitat, ploughing of fallow in spring, early harvesting and burning of stubble in summer can destroy nests, poison adults and reduce food sources;
- Change of crops: a reduction in alfalfa or other leguminous winter crops affects the birds' chances of survival due to reduced food sources and cover in winter;
- Overgrazing: inappropriate grazing management may damage breeding grounds;
- Collision with powerlines: bustards are big birds, their poor manoeuvrability in flight renders them unable to evade poorly marked powerlines. Collision with overhead cables is a significant cause of death in some countries. Small populations can be totally destroyed by a single powerline;
- Human disturbance: disturbance causes stress, desertion of clutches, and in the case of young birds, a reduction in time spent feeding. Disturbance at the display sites disrupts social behaviour and usually prevents reproduction;
- Predation: eggs and chicks are predated by foxes, corvids and dogs.

FARMING PRACTICES FAVOURABLE TO GREAT BUSTARD

To ensure the continued survival of the great bustard in the EU, the first priority is to prevent any further deterioration of its remaining habitats and to maintain these in a favourable condition. It will also be important to promote compatible land uses in areas adjacent to existing populations which will allow the population to grow and expand its range.

This can be achieved with the following:

- Preserve non-intensive mixed farming systems: in remaining areas where the great bustard is still present. This should include preserving extensively grazed rotational fallows (1-5 years) and maintaining non extensive grasslands and non-irrigated cereal cultivation (cereals and legumes). The aim is to have a large and diverse enough area, containing a mosaic of fallow land, permanent grassland and arable crops to sustain a viable population of great bustards;
- Prevent significant land use changes: in or near existing sites for the great bustard. This includes preventing irrigation schemes, afforestation, conversion to permanent crops, cereal monocultures, ploughing up of fallow land, construction of roads, powerlines and other infrastructures;
- Adapt existing agricultural practices: to the life cycle of the great bustard, for instance by avoiding the use of herbicides, pesticides and fertilizers or treated seeds, not ploughing fallow land in spring, not burning stubble in summer, delaying harvesting of crops until after chicks have hatched, leaving un-harvested crop islands around nest sites, suspending farming operations in leks during the mating season, avoiding night-time harvesting, leaving areas of unharvested crops and uncultivated field margins for foraging and cover;
- Promote extensification programmes: to adapt or revert intensively used cereal crops back to extensively managed mosaic of cereal cultivation, fallow and grassland; priority should be given to areas currently used by the species where fragmented parcels of habitat can be reconnected to provide a sufficiently large area of suitable habitat capable of sustaining a viable population;
- Planting of winter cereals and leguminous crops: such as winter wheat, alfalfa, clover or other types of crucifers in wintering areas for great bustards. Rape fields are also important as a winter food source for bustards as is the maintenance of stubble;
- Prevent disturbance at breeding and display sites: since breeding females are especially vulnerable to disturbance, interference caused by farming activities, vehicles driving across the fields, hunting, and birdwatching should be minimised, especially in areas of low population density, for instance through wardening. Shepherd dogs should be trained not to chase or kill bustards;
- Ensuring appropriate grazing: by maintaining low livestock densities (e.g. < 2 sheep/ha). Active shepherding helps make balanced use of the available forage resources and continuation of transhumance helps to remove stock during periods of least forage. Any fences should have a large enough mesh for the birds to pass through and not be made out of barbed wire.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the great bustard has particular habitat requirements that are unique to its lifecycle. However, as the bustard is essentially a species of extensive dry grassland intermixed with arable and fallow land, several of the measures mentioned above would also benefit other species protected under the Habitats and Birds Directives that are typical of these habitats.

Contrary to some other steppic birds, it may also occupy not too intensively managed arable land if part of a mosaic with fallow and pasture. The species that may benefit from bustard friendly management measures thus include true steppe birds as well as species also found in dry, extensively farmed arable land. Examples from across the range include:

Montagu's Harrier, *Circus pygargus*
Red-footed Falcon, *Falco vespertinus*
Little Bustard, *Tetrax tetrax*
Collared Pratincole, *Glareola pratincola*
Pin-tailed Sandgrouse, *Pterocles alchata*
Calandra Lark, *Melanocorypha calandra*
Tawny Pipit, *Anthus campestris*
Corn Bunting, *Miliaria calandra*
Imperial Eagle, *Aquila heliaca* (hunting area)
Saker, *Falco cherrug*
Stone Curlew, *Burhinus oedicnemus*
Black-bellied Sandgrouse, *Pterocles orientalis*
Roller, *Coracias garrulus*
Short-toed lark, *Calandrella brachydactyla*
Black-eared Wheatear, *Oenanthe hispanica*
Mammals like: Souslik *Spermophilus citellus*.

OBLIGATIONS ARISING FROM THE BIRDS DIRECTIVE

The great bustard is protected under the EU Birds Directive 79/409/EEC, listed in Annex I of the Directive. As a result, Member States must take the following measures to ensure its conservation.

General requirements

Member States are required to take the requisite measures to maintain the population of the great bustard at a level which corresponds in particular to its ecological, scientific and cultural requirements, or to adapt the population of the species to that level (cf Article 2).

To achieve this, Member States are required to preserve, maintain or re-establish a sufficient diversity and area of habitats for the great bustard which should include primarily the following (cf Article 3):

- creation of protected areas;
- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected areas;
- re-establishment of destroyed habitats;
- creation of habitats.

Protecting the species

Member States should take the requisite measures to establish a general system of protection for the great bustard throughout its natural range within Europe, and in particular to prohibit the following (cf Art 5):

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping birds, the hunting and capture of which is prohibited;
- sale, transport for sale, keeping for sale and the offering for sale of live or dead birds and of any readily recognizable parts or derivatives of these birds (cf Article 6).

Member States may derogate from these provisions under a number of circumstances (e.g. in the interest of public health, or judicious use) where there is no other satisfactory solution and where the derogations do not affect the overall conservation status of the species (cf Article 9).

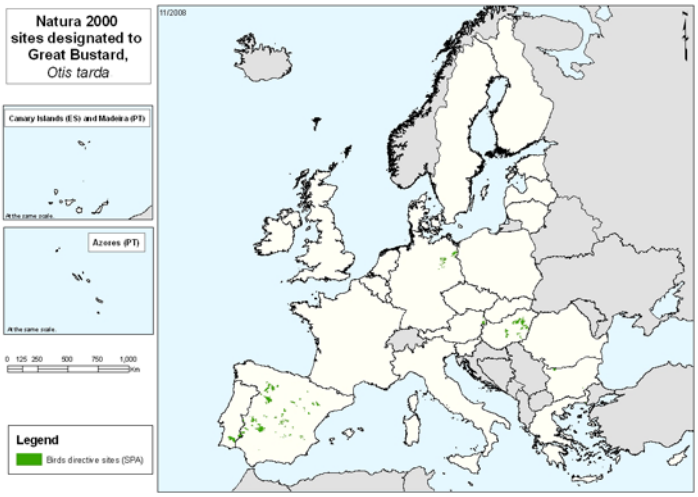
Protecting core habitats for the species under Natura 2000

The great bustard is listed in Annex I of the Birds Directive in view of its vulnerable conservation state. In addition to the general provisions referred to above, Member States must also classify the most suitable territories in number and size as Special Protection Areas under Natura 2000 to ensure the survival and reproduction of the species across its entire area of distribution within the EU (cf Article 4). As of November 2008, a total of 91 SPAs have been designated in the EU-27 for great bustard.

Managing Natura 2000 sites

Within these SPAs, Member States must take appropriate steps to avoid the deterioration of habitats of the great bustard as well as its disturbance, in so far as such disturbance could be significant.

Measures must also be taken to manage, maintain or, if necessary, restore areas for the great bustard both within SPAs and outside so that the objectives of the Directive are achieved (cf Art 3). The Birds Directive does not elaborate how this should be done as this is up to each Member State to decide but in practice management plans are very often developed for SPAs.



Management plans are useful documents in that they:

- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;
- analyse the socio-economic and cultural context of the area and the interactions between different land-uses and the species and habitats present;
- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases, if no viable alternatives exist, projects with significant negative impact on Natura 2000 sites can still go ahead if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive which apply to SPAs classified under the Birds Directive).

GREAT BUSTARD CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

The obligations arising under the Birds and Habitats Directives can be integrated into the CAP measures in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments), and certain wine payments. The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

In the case of the **Birds Directive** one of the 19 SMRs concerns the requirements resulting from the following articles that must be respected by farmers:

→ Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;

→ Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;

→ Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

In the case of SPAs another SMR based on the **Habitats Directive**, must also be respected:

- Article 6: within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

The exact requirements of the above mentioned SMRs vary between Member States and depend on the way the requirements of the Birds and Habitats Directives are translated into their laws and administrative measures (e.g. management plans for Natura 2000 sites) applicable to farmers, and consequently cross compliance.

In addition to meeting the SMRs, farmers must also keep land in good agricultural and environmental conditions (GAEC) which sets a minimum level of maintenance through, for instance, compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards, for example, for[42]:

– Minimum livestock stocking rates or/and appropriate regimes;
– Establishment and/or retention of habitats.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit bitterns:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;
- **Natura 2000 payments:** (Article 38) in order to compensate for costs incurred and income foregone resulting from legal or administrative restrictions on farming within Natura 2000 areas such as a mixed rotational farming system containing large mosaics of grasslands, arable crops (including winter crops) and fallow land;
- **Agri-environmental (AE) schemes:** (Article 39) linked to voluntary measures undertaken by farmers on contractual basis such as avoiding the use of herbicides, pesticides and fertilizers or treated seeds, not ploughing fallow land in spring, not burning stubble in summer, delaying harvesting of crops until after chicks have hatched, leaving unharvested crop islands around nest sites, suspending farming operations in leks during the mating season, avoiding night-time harvesting, leaving areas of unharvested crops and uncultivated field margins for foraging and cover, planting winter cereals and leguminous crops in great bustard wintering grounds to provide food and cover in winter, maintaining appropriate levels of grazing; providing wardening to avoid disturbance during breeding / nesting season;
- **Reimbursement of non-productive investments**: (Article 41) can cover a range of investments from on-farm investments linked to AE schemes or to measures identified in management plans for an SPA such as promoting extensification programmes, restoring and reconnecting suitable habitats for the species,

[42] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

introducing active shepherding and wardening, planting of winter crops, marking powerlines, changing barbed wire fences to fences with a large mesh size;

- **Conservation of rural heritage** (Article 57)**:** for instance to cover the cost of drawing up management plans for Natura 2000 sites hosting great bustards, undertaking habitat restoration measures in areas currently or potentially suitable for bustards, launching awareness campaigns on the conservation needs of great bustards.

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as great bustards;
- **Farm Advisory Services (FAS)** (Article 24 of RDR): the cost of obtaining advisory services on how to meet the minimum cross compliance requirements, such as those under the Habitats and Birds Directives can be reimbursed to farmers, foresters and other land managers, which can be beneficial to, inter alia, great bustards.
- **LEADER** (Article 61): integration of great bustard conservation into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF GREAT BUSTARD-FRIENDLY MEASURES UNDER RDPs

The following provide some examples of how different countries have introduced support for bustard friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details, including a review of possible shortcomings and lessons learnt, are provided in the species report on the Wildlife and Sustainable Farming Initiative website: http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

SPAIN

Castilla y León - Villafáfila Lagoons Reserve: This 389 km² area harbours the biggest single great bustard population in Spain and in the EU. Arable land is dominant in the area. One third of the arable land is under cereals and an equivalent amount is fallowed. Sheep production is also important, traditionally based on the forage resource provided by cereal stubbles, fallow land and cultivated forage crops, such as alfalfa. The first specific agri-environment scheme was introduced under Regulation 1278/92.

Different types of voluntary contracts were devised which included incentive payments for:

- Type 1 and 2 contracts for: increasing the area of fallow and pastures on the holding, and improving their condition for great bustards, reducing fertiliser use, creating small woods or hedgerows.
- Type 3 contracts: for establishing long-term set-aside of land (20 years)
- Type 4 contracts: for re-introducing or maintaining alfalfa cultivation or maintaining threatened crop varieties.

In 1998, a first evaluation of the programme showed a change in production trends on the farms under agreement, with increases of fallow (13 %) and legumes and grassland (5 %), and a decrease of cereal area (17 %). The reduction in the use of fertilizers was estimated to be 29 % and the area treated with chemical products was reduced by 13 % .In 2000, the number of type 1 and 2 contracts covered a total area of 215 000 ha in Castilla y Leon (close to the 13 % of potential area), at a total cost of 21.4 million EUR. In the same year, the number of type 3 and 4 contracts covered 4,465 ha and a total cost of 0.94 million EUR. By 2004 some 64.6% of cultivated land in the Lagoons Reserve area was participating in agri-environment measures.

The schemes have contributed to maintaining an extensive farming system that is of very limited economic viability, while improving the quality of the farmland habitat and increasing the area of alfalfa (from 760 ha in1996 to 3,624 ha in 2007). The schemes have also helped to convince farmers that the presence of great bustards on their land is not a barrier to their activity, but a source of economic benefit. Population surveys showed an increase in the great bustard population during the last 10–15 years. Of the various agri-environment measures, probably the most significant is the incentive for growing alfalfa, which has had the effect of maintaining a minimum presence of this crop in the great bustard area. The above described measures are therefore overall very positive for the species, although it does still allow certain practices that are negative for the great bustard, such as night-time harvesting and direct sowing (associated with blanket use of herbicides).

PORTUGAL

The Castro Verde Zonal Scheme (Alentejo) Having altered the land use plan to prevent further afforestation of 85% of the land within Castro Verde in the 1980s, and run a pilot agri-environment programme through LIFE funds, the Castro Verde Zonal Scheme was created specifically to promote low intensity agriculture that is compatible with the conservation of cereal steppe birds in the Castro Verde Special Protection Area (SPA).

The scheme pays farmers to maintain traditional crop rotations and low grazing intensities, reduce pesticide inputs and keep stubble or crop coverage over the winter. By joining the Castro Verde Zonal Plan, farmers commit to:

- Exclusively use traditional cereal rotations within a given set;
- Guarantee a minimum of 70% of soil coverage during autumn / winter;
- Maintain the barley area below 12,5% of the rotation area;
- Leave untreated strips in plots subject to chemical treatment (width <8m, but not smaller than 5% of a plot);
- No use of aerial treatment methods;
- No use of certain chemical products;
- In plots larger than 100 ha, sowing of 1 ha of certain legumes or peas for wildlife per 100 ha of culture in non-continuous plots, each smaller than 0,5 ha;
- Monitor and implement culture practices in the plots sown for wildlife until the end of their cycle;
- Maintain the natural vegetation around water courses and bodies without hindering their necessary flow and retention capacities;
- Respect the farming calendar and harvest and soil mobilisation practices defined annually by the local support structure according to the characteristics of the agricultural year and the evolution of the biological cycles of the species targeted by the measure;
- No burning of stubble;
- No irrigation of areas larger than 10 ha continuous or 10 ha per production unit without previous permission from the local support structure;
- No installation of fences higher than 1,2 m or enclosing areas smaller than 15 ha and plantation of small tree groups without previous permission from the local support structure;

Monitoring suggests that all dry grassland birds in the SPA have benefited, with species like the great bustard, increasing in numbers as a result of this scheme compared to similar areas where the scheme was not taken up. Initially, the payments offered were sufficient to make the scheme attractive to farmers and, by 2000, management agreements covered 60% of the Castro Verde SPA. In 2000, however, the payments were reduced by 20% while the scheme requirements remained the same. As a result, farmers lost interest in the scheme and many decided not to renew their contracts after the first five years had expired; now this scheme covers only 30% of the SPA.

HUNGARY

The great bustard in **Hungary** is a partial migrant. The population stands at ca 1,250 birds today. Originally a grassland bird, it is now also regularly found in cereal maize crops. Further intensification of steppes in Hungary was partly averted in 2002 with the introduction of Environmentally Sensitive Areas schemes. These ESAs, originally covering 40,000ha, were drawn up to introduce more environmentally friendly farming for the benefit of a number of farmland birds, such as the great bustard. Thanks to ESA two thirds of great bustard areas were eligible for agri environmental funding. Contracts could be made with farmers that encourage bustard-friendly farming: (1) arable farming with bustard protection and (2) alfalfa with bustard protection.

The voluntary schemes provide farmers with annual compensation payments for the loss of yield and other income due to the restrictions laid down in the contract. Management prescriptions include:

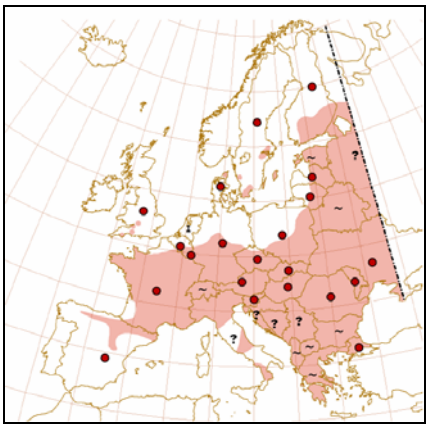
- Crop rotation (with determined crops ratio);
- Set-aside;
- Restrictions in the use of fertilizer, herbicides and fungicides;
- Prohibition of the use of highly toxic pesticides;
- Prohibition of soil loosening, amelioration, draining and irrigation activities;
- Restricted cutting (determined harvesting periods, methods and techniques);
- Application of game deterring chains during harvesting;
- Protective zone around nests;
- Reporting of the discovery of nests;
- Determined ploughing measures in areas with fire risk;
- Conservation of existing alleys, forest belts, old trees.

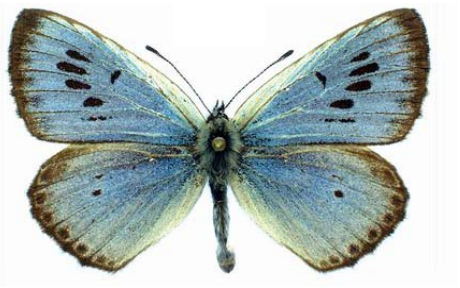
The scheme has been popular. For instance, in Kiskunsag which is one the Natura 2000 sites with the largest population of great bustard in Hungary, 50% of the land has been enrolled into agri-environment contracts. The scheme was however replaced two years later by a much broader RDP agri-environmental scheme which covers 120,000 ha. This was seen as a step backwards from the previous national schemes because the ESAs are no longer chosen with great bustard specifically in mind and the resources are too limited and cannot match the popularity of the schemes. Some new measures such as the use of heavy machinery and moving forward of the harvesting date to 15 June instead of 1 July are also directly detrimental for great bustards.

Another scheme that has great potential for the great bustard is the conversion of arable land to grassland. In Hungary, this conversion can be completed in 5 years. Such measures would be very good for creating habitats for the great bustard and to help it to expand its range. So far 600ha has been converted in Kiskunsag National park.

Large blue *Maculinea arion*

Habitats Directive – Annex IV





Maculinea arion occurs in the zones between c 40° and 62°N*[43]

	AT	BE*	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK*	
Present														

* re-introduced

SPECIES INFORMATION

ECOLOGY

- The large blue butterfly is a day butterfly with a large distribution area;
- Adults generally emerge in mid-June and may be seen until early August;
- The flying period at a single locality is 3 to 5 weeks, but the individual butterfly is short-lived, with an average lifespan of only 3 to 5 days;
- Females lay eggs exclusively in the flower buds of thyme *Thymus spp.* or oregano *Oreganum vulgar.* Eggs hatch in a few days and the three first larval instars feed on flowers of the host plant;
- After fourth molting the larva drops to the ground and awaits arrival of the ant (principally *Myrmica sabuleti)*, which mistakes it for one of its own grubs and brings it back to its underground colony. Inside the ants nest the butterfly larva feeds undetected on ant grubs;
- The predatory butterfly larvae need nests of a certain size to survive (minimum over 350 worker ants), and as a general rule there can only be one larva in each ant nest (and even then the average survival rate is still only around 20%);
- After a period of 10 months in the ants nest the butterfly pupates and flies away to start the cycle over;
- Adults generally stay within their own habitat patch which increases the risk of local extinction. But some adult butterflies have been observed flying up to 5 kilometers to recolonise sites nearby.

[43] *. Drawing courtesy of http://www.biolib.cz/

HABITAT REQUIREMENTS

- The large blue is found in dry grassland, on sandy and calcareous soils;
- Especially in Eastern Europe, it may be associated with forest edges or open areas in woodlands; In the North it is associated with south-facing short-grazed vegetation typically less than 2-3cm high. In the southern part of its range the species occurs mainly in hilly or mountainous areas (avoiding south facing slopes) and is found in more dense herbaceous cover (> 20cm in height);
- The species is entirely dependent on the presence of its host plant thyme *Thymus praecox, T. serpyllum or T. pulegioides* (mainly in northern parts of the range) or oregano *Origanum vulgare* (mainly in southern part of range) and on the presence of its host ant mainly *Myrmica sabuleti*;
- Suitable habitat for the butterfly is therefore restricted to areas where both the host ant and the local host plant(s) are present in sufficient abundance;
- In ideal circumstances 1 ha should contain more than 5% cover of the host plant and a high density of ant nests (ca 2500);
- Preservation of a suitable microhabitat for the host ant is usually the critical factor. If conditions are not optimal, *Myrmica sabuleti* is quickly outcompeted by other ant species;
- The host plants are generally found on well drained grassy areas which are relatively poor in nutrient and lightly grazed. In Northern Europe they are associated with warm, dry habitats whereas in Southern Europe they occur in more humid areas;
- Generally, the large blue has less specific habitat requirement in the southern parts of its distribution range than in the northern parts where its niche is much narrower. But exact habitat requirements vary significantly according to local climate and soil conditions;
- Suitable conditions for large blue butterflies should extend over a sufficiently large area to support a whole metapopulation (i.e. a series of small local populations). This means managing on a landscape level to ensure there are many suitable patches of habitats close to one another irrespective of whether they are used or not by the butterfly – just protecting sites where the species is present will not ensure its survival as local extinctions are frequent.

THREATS

The large blue butterfly has declined in large parts of the distribution area and is now extinct in several countries. In others it only occurs in a few areas. The major threats and main reasons for the decline of the distribution area and reduction of populations can be summarized as:

- Abandonment of traditional farming practices: The presence of a vegetation structure suitable for the host ants and host plants depends on traditional management such as livestock grazing or hay cutting. If these are abandoned, ecological succession quickly makes the area unsuitable;
- Change of grazing pressure: Depending on the local climate, topography and soil conditions, optimum sward heights vary from very low (less than 2 cm) to medium-high (up to 40 cm) but are always within a quite restricted range at a given site. Hence, the optimum grazing pressure at a site is within rather narrow limits, and both a reduction and intensification of grazing may be detrimental;
- Agricultural intensification: The conversion of grasslands to arable land has been a major cause of destruction of large blue habitat. Fertilization of grasslands and eutrophication through airborne nitrogen leads to profound changes in the structure and composition of the vegetation, causing the host plants and/or host ants to disappear. Re-sowing of grasslands and frequent cutting for silage are also detrimental. Use of pesticides (herbicides, insecticides) may also have a negative impact;
- Habitat fragmentation: Loss of habitat makes the remaining, suitable habitat more fragmented. This isolation limits (meta)population size, the possibilities of dispersal and the re-colonization of sites where the species has disappeared. The resulting, isolated, often small populations are highly vulnerable to catastrophic mortality and other chance events. Fragmentation also prevents genetic interchange, making the populations vulnerable to stochastic processes such as genetic drift;
- Afforestation: destroys the habitat of the large blue.

FARMING PRACTICES FAVOURABLE TO THE LARGE BLUE BUTTERFLY

In many parts of Northern Europe the large blue now exists only in a few localities. Its survival, and possible increase and dispersal, depends on presence of both the host plants and the host ants. Consequently, management prescriptions need to be finetuned for each site, depending on local soil and climatic conditions.

Conservation also needs to be done at the level of the metapopulation. This ensures that there is a sufficient amount of suitable habitat present within a wider area so that butterflies can spontaneously colonise habitat patches where it is not currently present. Spontaneous local extinctions and recolonisation are commonplace and must be taken into account as it is important not to just protect areas where the species is present but also potential habitats.

The following measures should be supported in order to benefit the species:

- Maintenance of traditional management of grassland: Traditional management, especially extensive livestock grazing, should be maintained to control vegetation succession and keep the area sufficiently open;
- Prevent agricultural intensification in core areas for the species, especially in countries with very limited localities for the species;
- Setting appropriate grazing levels: The most appropriate level of grazing will depend from one locality to another. The optimum vegetation height, and thus the appropriate grazing regime, varies with the local conditions (altitude, aspect, slope, temperature etc.). Depending on the optimum vegetation height at a site, grazing by cattle, horses or sheep may be used;
- Scrub removal: In areas where succession has progressed, it may be necessary to supplement grazing with the removal of scrub and young trees, or this may have to be done before grazing is (re-)introduced at the site. In general, this should not be carried out over very large areas and mowing during flight period should be avoided;
- Avoid pesticides and fertilization: Application of insecticides and herbicides targeted at broad-leaved weeds should be avoided at large blue localities. Furthermore, Thymus plants are readily ousted by more competitive species when nutrient levels are raised. Thus, use of herbicides, insecticides, fertilizer and manure should be explicitly avoided at all butterfly sites;
- Restoration of habitat at adjacent sites: Expansion of existing habitats is in general an important conservation tool. Especially at small sites holding a single population, the area of suitable habitat should be enlarged. Restoration of habitat by means of the above-mentioned management measures should be encouraged at suitable sites (e.g. previously occupied sites) within dispersal distance from localities where the species is currently present;
- Ensure that the species is not collected: The species is strictly protected under EU law and must not be collected. Although over collection is not regarded a major threat any illegal collections of even small numbers could have significant effects on local populations;
- Planting of Thymus: In some parts of the species' range, it may take decades before host plants re-colonize sites where they have disappeared or are too sparsely distributed. At such sites, planting of Thymus in areas with a good population of *Myrmica sabuleti* has proved an effective way of re-creating good conditions for the large blue;

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the large blue has particular habitat requirements that are unique to its lifecycle. However, several of the measures mentioned above would also benefit other species protected under the Habitats and Birds Directives that are typical of these habitats such as:

- Orchid spp.;
- Sand Lizard, *Lacerta agilis;*

- *Bush Cricket, Saga pedo;*
- Other *Maculinea* species;

A wide range of bird species also depend on habitats occupied by large blues for instance:

- Stone curlew, *Burhinus oedicnemus.*
- European Roller, *Coracias garrulous;*
- Lesser Grey shrike, *Lanius minor.*
- Water pipit, *Anthus spinoletta;*
- Whinchat, *Saxicola ruberta;*
- Woodlark, *Lullula arborea;*
- Ortolan Bunting*, Emberiza hortulana*
- Bee-eater, *Merops apiester;*
- Redbacked Shrike, *Lanius collurio;*
- Hoopoe, *Upupa epops.*

OBLIGATIONS ARISING FROM THE HABITATS DIRECTIVE

The large blue is protected under the EU Habitats Directive 92/43/EEC, it is listed in Annex IV as strictly protected species. As a result, Member States must take the following measures to ensure its conservation:

General requirements

Member States must undertake measures that are designed to maintain or restore the large blue at a '*favourable conservation status'* in the EU (cf Article 2).

The conservation status of a species is taken as 'favourable' when:

- populations are maintaining themselves over the long term and no longer showing signs of continuing decline;
- their natural range is not being reduced;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Protecting the species

The large blue is listed in Annex IV of the Habitats Directive. Member States should therefore take the requisite measures to establish a general system of protection for the large blue, and in particular to prohibit the following (cf Art 12):

- deliberate killing or capture by any method;
- deliberate disturbance, particularly during breeding, rearing, hibernation and migration;
- deliberate destruction or taking of eggs in the wild;
- deterioration or destruction of breeding sites or resting places;
- the keeping, sale and transport of specimens from the wild.

LARGE BLUE CONSERVATION THROUGH CAP/RDP

The obligations arising under the Habitats Directive for the large blue can be integrated into Common Agricultural Policy in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

The are no Statutory Management Requirements (SMR) of the CAP that apply to the large blue butterfly as it is not a species for which site designation under Natura 2000 is required, and the requirements of Article 12 of the Habitats Directive are not part of Statutory Management Requirements.

Nevertheless, farmers must keep farms in good agricultural and environmental conditions (GAEC) which requires a minimum level of maintenance through compulsory standards, for instance, for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards, for example, for[44]:

- Minimum livestock stocking rates or/and appropriate regimes;
- Establishment and/or retention of habitats;

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit large blues:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;
- **Agri-environmental schemes:** (Article 39) linked to voluntary measures such as maintaining or re-introducing appropriate grazing levels favoured by the large blue, prohibiting the use of pesticides and herbicides, not mowing during flight periods;
- **Reimbursement of non-productive investments**: (Article 41) can cover a range of expenses from on-farm investments linked to AE schemes or to measures identified in species action plans such as restoring and reconnecting suitable habitats for the species;
- **Conservation of rural heritage** (Article 57)**:** drawing up of management plans for places of high natural value inhabited by the large blue, environmental awareness actions regarding the conservation needs of the large blue, and investments associated with the maintenance, restoration and upgrading of the natural heritage and with the development of high nature value sites;

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as large blue butterflies;
- **Farm Advisory Services (FAS)** (Article 24 of RDR): the cost of obtaining advisory services on how to meet the minimum cross compliance requirements, such as GAEC can be reimbursed to farmers, foresters and other land managers, which can be beneficial to, inter alia, large blue;
- **LEADER** (Article 61): integration of conservation of large blue into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF LARGE BLUE FRIENDLY MEASURES UNDER RDP

Few measures were found in the RDPs which are directly targeted at large blue conservation but several measures could in theory have a positive indirect effect on the butterfly. The following provide some examples of how different countries have introduced large blue friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details are provided in the species report of the Wildlife and Sustainable Farming Initiative: http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

[44] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

SLOVENIA

The **Slovenian** Agri-Environment Programme (SKOP) within the Programme for Rural Development was introduced in 2001 as a pilot programme, with the aim to promote and offer financial support for 22 different agricultural measures in 4 groups: (1) diminishing negative environmental impacts of agriculture; (2) maintenance of natural wealth, biodiversity, soil fertility and traditional cultural landscapes; (3) protection of protected areas; (4) education, training and promotion.

The government expected the agri-environment programme to be attractive for farmers and that gradually between 20 and 40% of all agricultural land will be included. Already at the beginning of the implementation of SKOP in 2001, more than 20% of applicants for subsidies decided to participate in agri-environment programmes.

Under the new RDP (2007-2013) three schemes are of particular interest for rare butterflies and their habitats. The large blue is not specifically targeted but other species within the Maculinea family are mentioned and so it is highly likely that the large blue will benefit equally from these measures.

Submeasure 214 –III/3: Preservation of grassland habitats of butterflies: The aim is to increase the area of grassland to ensure the successful reproduction of endangered plant and animal species and the targeted reproduction of endangered grassland butterfly species (such as *Lycaena dispar, Maculinea teleius, Maculinea nausithous, Euphydryas aurinia*) in ecologically important areas.

The main measures to be undertaken in areas identified as ecologically important on an official register include: not mowing or grazing during the butterfly's development on nutritional grassland plants between the period 1 July to 20 August; maintaining stocking densities as 0.2-1.9 LU/ha but not producing livestock manure surplus; not allowing the application of mineral fertilisers and plant protection products. In addition, existing border strips and hedgerows must be trimmed and thinned every second year.

Submeasure 214 –III/4; preservation of litter meadows: Similar in terms of objectives to the above, this measure aims at the preservation of litter meadows within ecologically important areas. Mowing on these extensive grasslands and border strips must be adjusted to enable successful butterfly development and simultaneously maintain existing grassland habitat types rich in orchids and endangered birds such as corncrake. Pasture and mowing is not allowed before 25 August but is obligatory thereafter, stocking densities must be maintained at 0.2-1.9 LU/ha but must not produce livestock manure surplus; application of mineral fertilisers and plant protection products are also not allowed and existing border strips and hedgerows must be trimmed and thinned every second year.

LITHUANIA

In Lithuania, two of the six agri-environment schemes included in the RDP for 2004-2006 could have been useful indirectly to improve the habitat of *Maculinea arion.* These are the Grassland Management scheme and the Protected Target Areas scheme.

The general aims of the AE schemes as a whole were:

- 20,000 farms with a total of 200,000 ha enter the AE schemes;
- Land abandonment is reduced by 5%;
- 20% of the semi-natural grasslands and meadows are under AE management agreements;
- 50% of farmland in Natura 2000 sites are under AE management agreements.

The objectives of the Grassland Management scheme were to conserve permanent natural and semi-natural grasslands, to maintain extensive farming systems on existing grasslands and to prevent possible future introduction of intensive farming systems on these areas.

The scheme requirements included:

- No ploughing or re-sowing with improved grass varieties;
- Limitations on nitrogen use (max. 60 kg of total N per ha);
- Removal of bushes (manually); cut bushes must be removed;
- Isolated trees should be retained;
- Conditions on grazing to prevent overgrazing, undergrazing and other ways of damage of sward; max. 1 LU per ha if grazed during whole season;
- If not used for grazing, areas must be mown at least once a year;
- Mowing should be from centre of field towards edges; mown grass must be removed;
- In floristically rich grasslands, mowing should not take place before August;
- In floristically rich grasslands, pesticides and fertilizers are not allowed.

Agreements were entered for a minimum of 5 years. Annual payment of 809 LTL per ha (234 € per ha) was calculated by adding up costs for each undertaking listed in the agreement plus a 10% incentive.

The objective of the Protected Target Areas scheme was to provide a comprehensive approach to the conservation and management of designated target areas. These target areas include Natura 2000 sites, nationally protected areas (strict reserves, nature reserves, national and regional parks), and core areas and stepping stones of the Lithuanian ecological network. Farmers holding their land in protected target areas are obliged to comply with specific requirements as a condition of participating in the scheme.

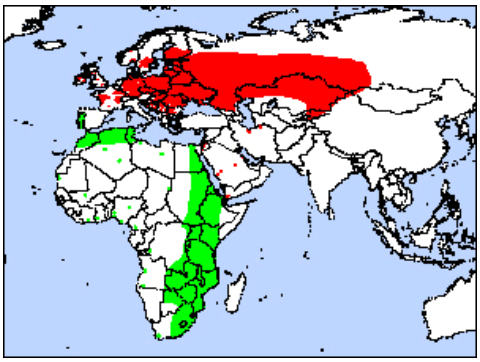
Proposed measures for each area were developed with participation of the staff of the protected area, and individual agri-environment plans shall be prepared by an approved planner in consultation with an environmentalist.

Among the proposed requirements were:

- No ploughing, reseeding or improvement of natural or semi-natural habitats;
- No application of pesticides, fertilizers and manure on natural or semi-natural habitats;
- Conditions for management of “rich species meadows”: postponed date of mowing, no fertilizers, restrictions on grazing.

Corncrake *Crex crex*

Birds Directive – Annex I



Crex crex breeds in Europe and central Asia, as far east as western China, and winters in sub-Saharan Africa.*

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

SPECIES INFORMATION

ECOLOGY

- Corncrakes breed in Europe and Central Asia, but overwinter in Africa;
- Birds arrive at their breeding grounds in the EU from April onwards, they are rarely seen but the distinctive sound of the male calling can be heard at night during most of the breeding season;
- Corncrakes have a low adult survival rate which is why they must produce two broods a year;
- Nesting occurs between May and August;
- Incubation time is 18 days and the chicks are flightless until about 35 days;
- Corncrakes are generalised feeders, eating mainly invertebrates.

HABITAT REQUIREMENTS

- Corncrakes are birds of humid grasslands. They breed in alluvial meadows, lowland marshes, and drier parts of fens and bogs as well as in grasslands where vegetation is removed annually by mowing. A large part of the EU population is therefore strongly associated with grasslands in agricultural use. The species can occur up to 1500-3000m above sea level;
- A key factor in determining suitable breeding habitat is the vegetation structure, which should provide enough cover for the birds (i.e. grass must be at least 20-40cm in height) from April onwards, without being so dense that it is difficult for the birds to walk through;
- In many regions, the species seems to prefer a mosaic of humid meadows and areas of higher vegetation so that birds can use high vegetation early in the season and then move to meadows when grass is high enough;
- Ideally 150 ha or more of relatively contiguous suitable habitat should be available to sustain a viable local population.

* *Map and drawing courtesy of Birdlife: http://www.birdlife.org/datazone/species/index.html*

THREATS

The causes of decline in corncrake populations are relatively well known and are more or less the same across the species range in Europe (only the most critical threats are listed here):

- Loss of hay-meadows and wetlands: Many traditional hay meadows with late mowing regimes have been drained and intensified or ploughed up for conversion to arable crop cultivation resulting in significant loss of breeding habitat;
- Intensification of grassland management: Increased use of fertilisers, improved grass varieties, silage, fast and synchronous mowing as well as improved drainage of fields and control of winter flooding changes the vegetation structure to such an extent that corncrakes are no longer able to breed in these areas;
- Loss of habitat through land abandonment: Initially the lack of management may be favourable to corncrakes for a short while, but without regular mowing and grazing, shrubs and trees begin to invade the meadows rendering them unsuitable as breeding habitat for corncrakes;
- Early or repeated mowing: If mowing is done too early or too regularly nests are destroyed, chicks are killed and the habitat is no longer suitable for breeding;
- Increased chick mortality: occurs during fast and/or synchronous mowing. As the chicks are flightless for the first 35 days, they are unable to escape from tractors and are killed or injured during mowing.

FARMING PRACTICES FAVOURABLE TO CORNCRAKES

The corncrake has low populations and a very fragmented range in some countries but is more widespread in others, particularly in eastern Member States. Conservation measures and corncrake friendly farming techniques are therefore just as important, if not more important, in those areas where the species still has good population numbers. It is more efficient and cost-effective to maintain a secure population than to try to bring a species back from the brink of extinction once the population has collapsed. The following farming practices will help:

- Maintaining traditional management of meadows: Meadows that are still being managed in a traditional way (i.e. late mowing, no drainage, limited fertilizer use) should be supported so that they continue to be managed in this manner;

- Preventing further loss of humid grasslands: Further intensification should be avoided in humid grasslands that are suitable for corncrakes, both within existing SPAs and in the wider countryside so that there is a sufficient diversity and area of habitats to ensure a healthy population and distribution of corncrakes in Europe;

- Avoiding drainage and allowing winter flooding: Drainage and control of winter flooding pave the way for early mowing and other kinds of intensification of management or may lead to adverse changes in vegetation cover, including encroachment of trees, shrubs in the area. These should therefore be avoided wherever possible;

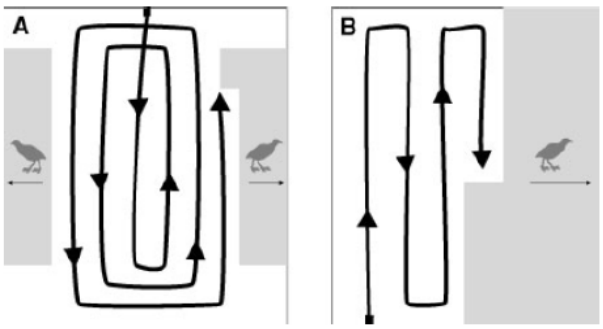
- Encouraging a large mosaic structure of fields and meadows: Wherever possible, large coherent mosaics of hay meadows and areas of higher vegetation should be created so that birds can use high vegetation in early season and move to meadows when grass is high enough. The ideal size of relatively contiguous suitable habitat needed to sustain a viable local population varies according to local conditions, areas of 150 ha -400 ha have proven to be appropriate in several countries;

- Postponing the date of first mowing: Across most of the region mowing should not take place before 1 August. In southern parts where breeding occurs earlier, postponement until 15 July may be sufficient whereas in mountainous regions where breeding is later, mowing should be delayed to 15 August or 1 September. In addition to reducing chick mortality, a postponement of first mowing also ensures that the vegetation is sufficiently high to allow a second breeding attempt after the first brood has fledged;

- Using corncrake friendly mowing techniques: If it is not possible to postpone mowing until the end of the breeding season, then measures should be taken to mow the fields in a manner that allows the corncrakes to escape from being killed by machinery. Whereas adults are usually fast enough to escape cutting

machinery, chicks are not. Also, the birds try to avoid open areas, as fields are usually mowed from the edge of the fields towards the centre, the birds do not want to get out into the open and become trapped and are killed. In the past hand scything was ideal for corncrakes, and to a lesser extent horse drawn mowing. If this is not possible then mechanized mowing should proceed from one edge of the field to another or from the centre out;

Fig. 1.2. Corncrake-friendly mowing patterns (from Anon. 2000).



- Staggering the mowing of large fields: over a two week period can also help reduce mortalities significantly;
- Leaving uncut areas: The retention of unmown refuge strips along the edges and/or unmown plots in depressions is also beneficial for the species;
- Providing early cover: Early cover with tall vegetation will provide the species with suitable breeding grounds early in the breeding season, the species can then move to the humid meadows once these have reached a sufficient height in order to start their second brood;
- Removing invading scrub and re-introducing corncrake friendly mowing on abandoned fields: Overgrown and abandoned fields containing habitats that were once used by corncrakes or that are nearby to, or contiguous with, existing breeding areas should be restored by supporting the removal of invading trees and scrubs and re-introducing annual late mowing as described above;
- Avoiding excessive grazing: to preserve sufficient vegetation cover, stocking densities should not exceed 0.25 LU per ha or should be limited to a period after the corncrake's breeding season.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the corncrake has particular habitat requirements that are unique to its lifecycle and to its long-term survival. However, as the corncrake is essentially a species of semi-natural humid grasslands, several of the measures mentioned above would also benefit other protected species under the Birds Directive that are typical of humid grasslands. Some use this habitat for breeding and a greater number of species use the habitat as a hunting area, e.g.:

* Hen Harrier *Circus cyaneus*
* Grasshopper Warbler *Locustella naevia*
* Greater Spotted Eagle *Aquila clanga* (hunting area only)
* Lesser Spotted Eagle *Aquila pomarina* (hunting area only)
* Curlew *Numenius arcuata*
* Great Snipe *Gallinago media*
* Short-eared Owl *Asio flammeus*
* Barn Owl *Tyto alba* (hunting area only)
* White stork *Ciconia ciconia*
* Common Snipe *Gallinago gallinago*

The particular corncrake-friendly mowing also benefits the huntable species Quail *Coturnix coturnix*, which shares the drier parts of the habitat with the corncrake.

In relation to species on the Habitats Directive, the measures implemented could also benefit habitat types hosting rare orchids depending on the region in question. Mammals like otter *Lutra lutra,* insects like large copper *Lycaena dispar and* amphibians like great crested newt *Triturus cristatus* would also benefit.

OBLIGATIONS ARISING FROM THE BIRDS DIRECTIVE

The corncrake is protected under the EU Birds Directive 79/409/EEC. As a result, Member States must take the following measures to ensure its conservation.

General requirements

Member States are required to take the requisite measures to maintain the population of the corncrake at a level which corresponds in particular to its ecological, scientific and cultural requirements, or to adapt the population of the species to that level (cf Article 2).

To achieve this, Member States are required to preserve, maintain or re-establish a sufficient diversity and area of habitats for the corncrake which should include primarily the following (cf Article 3):
- creation of protected areas;
- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected area;
- re-establishment of destroyed habitats;
- creation of habitats.

Protecting the species

Member States should take the requisite measures to establish a general system of protection for the corncrake throughout its natural range within Europe, and in particular to prohibit the following (cf Art 5):
- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping birds, the hunting and capture of which is prohibited;
- sale, transport for sale, keeping for sale and the offering for sale of live or dead birds and of any readily recognizable parts or derivatives of these birds (cf Article 6).

Member States may derogate from these provisions under a number of circumstances (e.g. in the interest of public health, or judicious use) where there is no other satisfactory solution and where the derogations do not affect the overall conservation status of the species (cf Article 9).

Protecting core habitats for the species under Natura 2000

The corncrake is listed in Annex I of the Birds Directive in view of its vulnerable conservation state. This means that, in addition to the general provisions referred to above, Member States must also classify the most suitable territories in number and size as Special Protection Areas under Natura 2000 to ensure the survival and reproduction of the species across its entire area of distribution within the EU (cf Article 4). As of November 2008, 627 SPAs have been designated in the EU-27 where the corncrake is indicated to be present.

Managing Natura 2000 sites

Within these SPAs, Member States must take appropriate steps to avoid the deterioration of habitats of the corncrake as well as its disturbance, in so far as such disturbance could be significant.

Measures must also be taken to manage, maintain or, if necessary, restore areas for the corncrake both within SPAs and outside so that the objectives of the Directive are achieved (cf Art 3). The Birds Directive does not elaborate how this should be done as this is up to each Member State to decide but, in practice, management plans are very often developed for each SPA within Natura 2000.

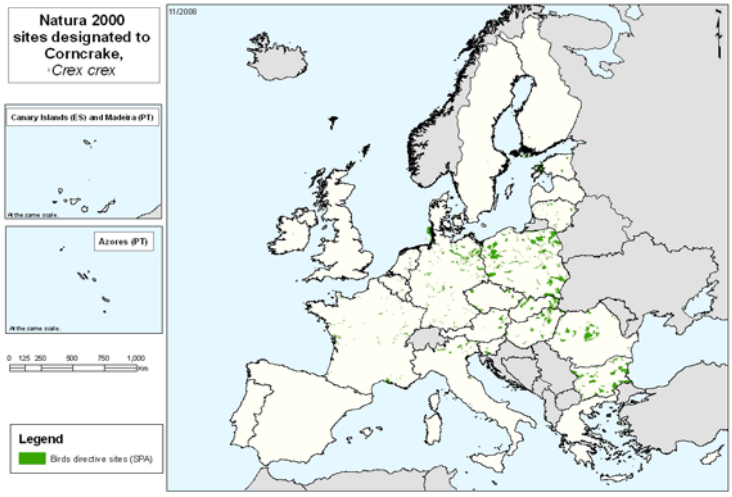
Management plans are useful documents in that they:
- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;

- analyse the socio-economic and cultural context of the area and the interactions between different land-uses and the species and habitats present;
- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases, if no viable alternatives exist, projects with significant negative impact on Natura 2000 sites can still go ahead if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive which apply to SPAs classified under the Birds Directive).



CORNCRAKE CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

The obligations arising under the Birds and Habitats Directives can be integrated into the CAP measures in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

In the case of the **Birds Directive** one of the 19 SMRs concerns the requirements resulting from the following articles that must be respected by farmers:

→ Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;

→ Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;
→ Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

In the case of SPAs another SMR based on the **Habitats Directive**, must be respected:
- Article 6: within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

The exact requirements of the above mentioned SMRs vary between Member States and depend on the way the requirements of the Birds and Habitats Directives are translated into their laws and administrative measures (e.g. management plans for Natura 2000 sites) applicable to farmers, and consequently cross compliance.

In addition to meeting the SMRs, farmers must also keep land in good agricultural and environmental conditions (GAEC) which sets a minimum level of maintenance through, for instance, compulsory standards for:
- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards, for example, for[45]:
– Minimum livestock stocking rates or/and appropriate regimes;
– Establishment and/or retention of habitats.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit corncrakes:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;

- **Natura 2000 payments:** (Article 38) in order to compensate for costs incurred and income foregone resulting from legal or administrative restrictions on farming within Natura 2000 areas. such as allowing continued winter flooding or not intensifying grassland management;

- **Agri-environmental schemes:** (Article 39) linked to voluntary measures such as delaying mowing until end of breeding season, introducing corncrake friendly mowing regimes, leaving strips of unmown land, creating large mosaics of suitable habitats, providing early cover, staggering mowing regimes, removing invading scrub, re-introducing corncrake friendly farming etc…

- **Reimbursement of non-productive investments**: (Article 41) can cover a range of investments from on-farm investments linked AE schemes or to measures identified in management plans for an SPA such as restoring the natural hydrology of humid grasslands or installing fences around areas used by birds for early cover, or which enhance the public amenity value of a Natura 2000 area;

- **Conservation of rural heritage** (Article 57)**:** for instance to cover the cost of drawing up management plans for Natura 2000 sites hosting corncrakes, undertaking habitat restoration measures in areas currently or potentially suitable for corncrakes, launching awareness campaigns on corncrake conservation requirements amongst farmers.

[45] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and to train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as corncrakes;
- **Farm Advisory Services (FAS)** (Article 24 of RDR): the cost of obtaining advisory services on how to meet the minimum cross compliance requirements, such as those under the Habitats and Birds Directives can be reimbursed to farmers, foresters and other land managers, which can be beneficial to, inter alia, for corncrakes;
- **LEADER** (Article 61): integration of corncrake conservation into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF CORNCRAKE-FRIENDLY MEASURES UNDER RDP

The following provide some examples of how different countries have introduced support for corncrake friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details are provided in the outputs of the Wildlife and Sustainable Farming Initiative:
http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

THE CZECH REPUBLIC

In the **Czech Republic**, an agri-environment scheme under RDP 2000-2006 was specifically targeting the conservation of corncrake on grassland. Eligible farms are those that have meadows with breeding corncrake.

Required management included the following:
- Application of fertilisers including farmyard manure shall be avoided on the identified areas;
- First mowing shall not take place before 15 August. After the first mowing the area may be used for grazing;
- Mowing shall be made from the centre to the edges. The mowed grass shall be removed from the parcel and used within the farm or shall be disposed of;
- There shall be no rolling and smoothing of the grassland from 15 March until 30 June;
- Mowing shall not be made by a group of mowers.

By 2006, 16,500 ha were being managed under this scheme. The rigidity of the management required under this scheme however meant that the full potential of the scheme was not realised (25,000ha). It has, nevertheless, introduced sympathetic management on these meadows and raised awareness about the plight of these species and how they can be helped.

In light of this the scheme has been maintained in the RDP (2007-2013) with the following additions:
- Grazing of grassland is no longer allowed;
- Rolling, smoothing, mulching, fast restoration and restoration of grassland could be possible with approval of the nature conseration body.

No official monitoring takes place to evaluate whether corncrakes are benefiting, but Birdlife Czech Republic has carried a series of surveys in some of the core corncrake areas such as in the Novohradské hory SPA which shows encouraging results.

SLOVENIA

The **Slovenian** Agri-Environment Programme (SKOP) within the Programme for Rural Development was introduced in 2001 as a pilot programme, with the aim to promote and offer financial support for 22 different agricultural measures in 4 groups: (1) diminishing negative environmental impacts of agriculture; (2) maintenance of natural wealth, biodiversity, soil fertility and traditional cultural landscapes; (3) protection of protected areas; (4) education, training and promotion.

The government expected the agri-environment programme to be attractive for farmers and that gradually between 20 and 40% of all agricultural land will be covered by agri-environment agreements. Already at the beginning of the implementation of SKOP in 2001, more than 20% of applicants for subsidies decided to participate in agri-environment programmes.

Under the new RDP (2007-2013) three schemes are of particular interest for corncrake and its habitats:

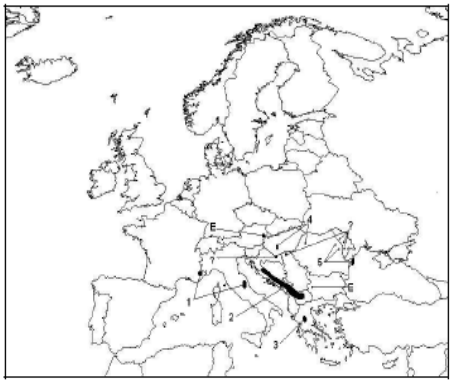
- Submeasure 214 –III/5: **Bird conservation in humid extensive meadows in Natura 2000 areas**: the aim is to provide favourable population status of endangered bird species, such as corncrake, curlew and common snipe, and habitats in these humid extensive meadows. The main measures include first mowing only after 1 August, mowing to be done from meadow centre outwards, grazing is not possible. In addition it is recommended to use a scythe mower at reduced speed, to mow at minimum height of 10cm above the ground, to leave unmown strips 3-5m wide, to leave and maintain individual bushes and trees 5-15 m wide;

- Submeasure 214 – III/2: **preservation of special grassland habitats:** broader than the above scheme, this scheme which is focussed on ecologically important areas (i.e. broader than Natura 2000) aims to maintain and increase the area of grassland for endangered plants and animals (orchids, marsh gladiolus, meadow squill, amphibians and insects which provide food for white storks, less grey shrike and red backed shrike). It also especially targets nesting of endangered grassland bird species such as corncrake. The activities for wildlife are fairly broad, requiring adjusted mowing and grazing to match the requirements of the above mentioned species: i.e. grazing or mowing and gathering are to be performed after the flowering of grasses and raising of offspring of endangered birds (i.e. after 15 July). Green cover is also not allowed prior to flowering and raising of offspring (i.e. before 15 July). Stocking densities should be within 0.2 and 1.9 LU/ha of UAA;

- Submeasure 214 –III/4; **preservation of litter meadows**: similar in terms of objectives to the above measure, this measure aims at the preservation of litter meadows within ecologically important areas. These meadows are to be mown once a year in late summer or in autumn (i.e. not before 25 August) and the mown grass is used as litter for animals. Species expected to benefit area several species of butterfly as well as corncrakes and orchids.

Meadow viper *Vipera ursinii*

Habitats Directive – Annex II & IV



Vipera ursinii extends from Western Europe to Russia and Kazakhstan and beyond through the Asian part of Russia.

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

SPECIES INFORMATION

ECOLOGY

- The meadow viper is a mildly venomous snake. It is the smallest European viper with a slender body and a length of 400-450 mm (recorded maximum of 630 mm);
- Females are larger than males. The species is grey to brownish with a wavy band that is black, brown or reddish. There are dark spots along the sides that are usually lighter in color dorsally;
- Meadow vipers are almost exclusively diurnal, but will undergo different periods of hibernation in winter. For subspecies in mountain areas the hibernation period can be up to 6 month long. Hibernation is from October/November to March/April;
- The main period of reproduction depends on the subspecies, but mating is typically in April/May. The species is ovoviviparous meaning that the females retain the eggs throughout gestation and give birth to live young;
- The young snakes are born in August-September-October, but there are also records suggesting that there could be prolonged gestation where young are being born the following year;
- The females give birth to 2 - 20 young, sometimes only every second or third year;
- They have many natural enemies including birds of prey, mustelids, wild cats, and other snake species;
- The meadow viper feed to a large extent on insects, sometimes with a seasonal shift to lizards and small mammals which are eaten early in the season.

HABITAT REQUIREMENTS

The meadow viper has a restricted distribution in Europe with populations of different subspecies in six Member States. The subspecies prefer quite different habitats covering a spectrum from lowland steppe grasslands to alpine meadows.

Well-drained alpine and subalpine meadows between 900 and 3000 m in altitude:

- The montane populations are invariably found on warm, sunny south or east facing slopes, often on limestone. An unshaded structurally diverse cover of grasses and other low herbaceous plants is crucial, as this provides both basking areas and adequate shelter in close proximity of each other. High densities are often found where dwarf juniper *Juniperus nana* occurs in abundance, the low spreading mats of this plant providing excellent protection;
- Most of the montane sites occupied by meadow vipers lie at or above the tree line, where natural grazing has been sufficient to control succession and maintain an open, structurally diverse vegetation sward. Light livestock grazing and haymaking may also create and maintain suitable habitat.

Dry or mesic meadow-steppe grasslands, usually below 300 m, occasionally up to 800 m.

- Lowland populations are found in open meadow-steppe grasslands without shrubs or trees. The vegetation must be physically diverse, and a particularly essential feature seems to be the presence of grass tussocks. To suit the requirements of the vipers throughout the year, two different habitat components must normally be present: (1) Low-lying damp areas, often prone to winter flooding, that provide humid, relatively cool habitats used by the snakes in summer. (2) Higher areas, often on dry sandy substrate, used for hibernation;
- On the lowland steppes, winter flooding, aided by grazing, has been important in preventing viper habitats from overgrowing. In recent centuries, traditional forms of management by humans (e.g. hay cutting, occasional burning) have also had considerable influences.

THREATS

Loss of habitat is the principal cause of decline. Human persecution and illegal collection are also very important and may now be major threats in areas where at least the habitat is safeguarded.

- Habitat destruction: This has been particularly important in lowland populations, where most of the suitable habitat is now converted to agricultural monocultures or forestry plantations. Large areas of habitat have also been lost to urban expansion and infrastructure development. Habitat destruction has generally been less severe in montane areas, but conifer plantations and the construction of tourist resorts, ski runs, dams etc. have caused some loss of habitat;
- Habitat fragmentation: Habitat destruction leads to habitat fragmentation, limiting population size and preventing re-colonization and genetic interchange. Small isolated populations are not only vulnerable to catastrophic chance events but also to the loss of genetic diversity;
- Change of habitat management: Adverse changes of habitat may occur as a result of changes in land use or in the management regimes which are sometimes, ironically, introduced for nature conservation purposes. Generally, some (often traditional) level of management is necessary to prevent the habitats from overgrowing, whereas more intensive use is detrimental;
- Overgrazing: While light grazing is beneficial, heavy grazing by livestock such as cattle or sheep may within weeks totally destroy the diverse tussocky vegetation structure needed by the snakes, eventually leading to local extinction. Overgrazing is a concern at a number of montane sites in Greece, France, Italy and even lowland sites in Hungary;
- Burning: Occasional, controlled burning is often practiced in traditional pastoral systems to promote the growth of fresh vegetation, and this practice has helped to prevent the areas from overgrowing. Excessive burning is highly damaging to meadow viper microhabitats;
- Hay cutting: Traditional hay cutting by hand has helped keep viper habitats open, but cutting is now largely performed mechanically. When carried out too frequently and/or with the cutting blades set too close to the ground, mechanised cutting destroys the tussocky vegetation structure essential for snakes and may even kill the animals hiding in the tussocks during the operation;
- Removal of unwanted plants: Dwarf juniper *Juniperus nana* is an extremely valuable habitat feature for montane meadow viper populations. However, juniper is not consumed by sheep or horses and is therefore considered a nuisance by shepherds that sometimes grub out the bushes or fire areas;

- Abandonment: The decline of traditional pastoral farming has caused loss of open grasslands to succession;
- Water level increase: As part of the intensification of agriculture, drainage has caused the loss of large areas of lowland meadow viper habitat. However, reinstatement of water tables can also be a problem if not thought out as it risks drowning snakes, or freezing them during hibernation;
- Persecution: Despite its strict protection under EU law, the meadow snake is still persecuted in places by people who mistakenly consider it highly venomous. The small, isolated populations surviving today are unable to sustain even small levels of persecution or collection;
- Illegal collection: A trend for owning venomous reptiles and the increasing rarity of the species has led to it being highly sought after by reptile keepers. Both commercial dealers and individual snake enthusiasts engage in illegal collection, which poses a serious threat to the survival of many small populations, especially of the endangered (and therefore highly desirable) lowland subspecies;
- Pollution. Isolated fragments of natural vegetation, surrounded by intensive agriculture, are extremely vulnerable to airborne nitrogen, spray drift of pesticides and surface run-off of fertilizers and other agrochemicals. These agents may bring about significant changes in grassland ecosystems, and the habitat and prey of the meadow viper may suffer as a result;
- Predation and competition: Native predators and competitors are part of the natural ecosystem and should not be considered an extrinsic threat. However, when an imbalance occurs (almost always due to human activities) other wildlife species may pose a serious threat to a meadow viper population. For instance, an over-population of wild boar has caused significant damage to viper habitats in Hungary and Italy, and the boars may also prey on the snakes. Intensive rearing and release of pheasants for shooting may also be a problem. Pheasants can consume juvenile snakes and are a major threat to the species in the Danube delta.

FARMING PRACTICES FAVOURABLE TO MEADOW VIPERS

Because the meadow viper populations are so isolated and reduced in size, the priority has to be to maintain existing core areas in a favourable condition and to enable the species to expand in range and reconnect with other isolated populations. Potentially favourable farming practices include:

- Preventing further loss or damage to existing habitats: by avoiding inappropriate land use changes resulting from new infrastructure, urbanization, or intensification in and around existing meadow viper areas;
- Maintaining appropriate levels of livestock grazing: Light grazing is beneficial as it maintains an open vegetation structure and prevents scrub invasion;
- Hay cutting by hand: Traditional hay cutting by hand helps keep viper habitat open and tussocky, but must not be carried out too frequently or be too closely cropped. Mechanised cutting destroys the tussock vegetation structure and should be avoided where possible;
- Maintenance of dwarf juniper bushes: although junipers are not consumed by sheep or horses, farmers should be persuaded to keep them in suitable meadow viper habitats;
- Prevent inappropriate changes in water level: that either drain the area as part of agricultural intensification or reinstate water tables to the detriment of the snakes;
- Prevent persecution and illegal collections: through greater awareness of the snake's shy behavior and only mild venom and greater surveillance;
- Restrict use of pesticides, fertilizers and other chemicals: in or near to meadow viper habitats;
- Create or preserve wildlife micro refuges: In particular grass strips have a positive effect, especially if they are located along fixed landscape elements (forests, waterways etc.). Also hedges and field margins cultivated in an extensive way or sowed to promote biodiversity are beneficial. Fallow is another biodiversity friendly practice;
- Control of game species: such as wild boar and pheasants. If there are too many of them they may cause significant effects on local viper populations.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the meadow viper has particular habitat requirements that are unique to its lifecycle. However, several of the measures mentioned above would also benefit other species protected under the Habitats and Birds Directives that are typical of these habitats:

Alpine habitats:

Black grouse, *Tetrao tetrix*
Ortolan bunting, *Emberiza hortulana*
Woodlark, *Lullula arborea*

Lowland habitats:

Red-footed falcon, *Falco vespertinus*
Roller, *Coracias garrulus*
Great Bustard, *Otis tarda*
Orchid species, *Orchidaceae sp.*
European Souslik, *Spermophilus citellus*
Insects i.e. grasshoppers, crickets, butterflies, beetles.
Saker falcon, *Falco cherrug*
Lesser grey shrike, *Lanius minor*
Corncrake, *Crex crex*
Sand Lizard, *Lacerta agilis*

OBLIGATIONS ARISING FROM THE HABITATS DIRECTIVE

The meadow viper is protected under the EU Habitats Directive 92/43/EEC and is listed in Annexes II and IV of the Directive. As a result, Member States must take the following measures to ensure its conservation:

General requirements

Member States must undertake measures that are designed to maintain or restore the meadow viper at a '*favourable conservation status'* in the EU (cf Article 2).

The conservation status of a species is taken as 'favourable' when:

- populations are maintaining themselves over the long term and are no longer showing signs of continuing decline;
- their natural range is not being reduced;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Protecting the species

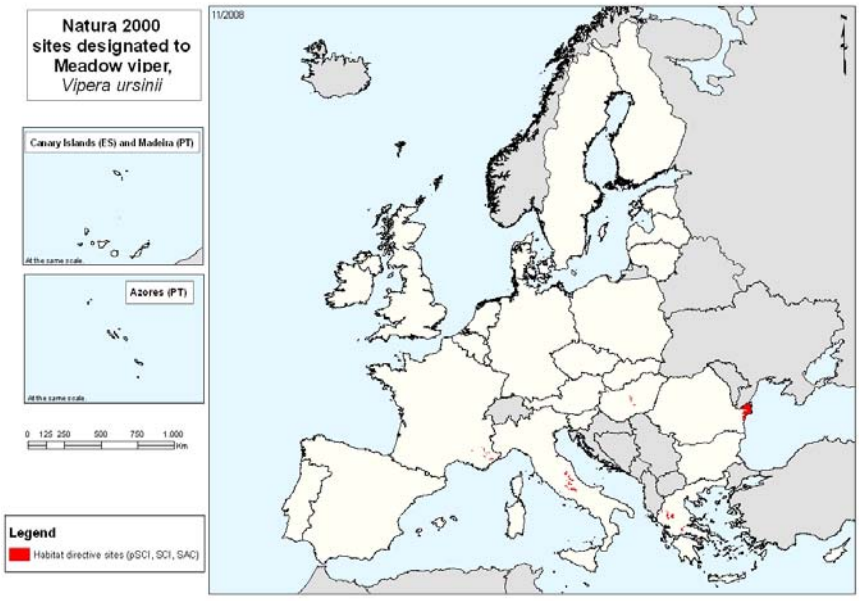
Member States shall take the requisite measures to establish a system of strict protection for the meadow viper, and in particular to prohibit the following (cf Article 12):

- deliberate killing or capture by any method;
- deliberate disturbance, particularly during breeding, rearing, hibernation and migration;
- deliberate destruction or taking of eggs in the wild;
- deterioration or destruction of breeding sites or resting places;
- the keeping, sale and transport of specimens taken from the wild.

Derogations to the above are allowed in some special circumstances provided that no satisfactory alternatives exist and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status. (Article 16).

Protecting core habitats for the species under Natyra 2000

Because the meadow viper is listed in Annex II of the Habitats Directive, Member States must, in addition to the general provisions referred to above, designate sites under Natura 2000 to maintain and restore the species to a favourable conservation status (cf Articles 1 and 3). As of November 2008, a total of 45 Sites of Community Importance (SCIs) have been designated in the EU where the meadow viper is recorded as being present.



Managing Natura 2000 sites

Within these SCIs, Member States must take appropriate steps to avoid the deterioration of habitats of the meadow viper as well as its disturbance, in so far as such disturbance could be significant. Member States shall also take positive measures to conserve and restore the species to a favourable conservation status. This means establishing the necessary conservation measures corresponding to the ecological requirements of the species involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans (Cf Article 6).

In practice management plans are very often developed for each SCI within Natura 2000. Management plans are useful documents in that they:

- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;
- analyse the socio-economic and cultural context of the area and the interactions between different land-uses and the species and habitats present;
- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases, if no viable alternatives exist, projects with significant negative impact on Natura 2000 sites can still go ahead if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive).

Protecting and managing landscape features outside Natura 2000

With a view to improving the ecological coherence of the Natura 2000 Network, Member States shall endeavour, in their land use planning and development policies, to maintain and restore landscape features which are of major importance for wild fauna and flora (cf Article 10). Such features could be linear structures (e.g. small rivers with their banks, hedgerows or rough herbaceous vegetation at field boundaries) that act as dispersal corridors or small ponds etc acting as stepping stones. Preservation and proper management of these landscape features could be of great value for the migration, dispersal and genetic exchange of species with such isolated population as the meadow viper.

MEADOW VIPER CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

Obligations arising under the Birds Directive can be integrated into the CAP measures in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

One of the 19 Statutory Management Requirements (SMR) concerns the respect of the following articles of the Habitats Directive which are relevant for the meadow viper:

- Article 6: Within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

In addition to meeting the SMRs, farmers must also keep farms in good agricultural and environmental conditions (GAEC) which requires a minimum level of maintenance through compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture;

Member States can also voluntarily set standards for[46]:

- Minimum livestock stocking rates or/and appropriate regimes;
- Establishment and/or retention of habitats;
- Prohibition of the grubbing up of olive trees;
- Maintenance of olive groves and vines in good vegetative condition.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit the meadow viper:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;
- **Natura 2000 payments** (Article 38 & 46): in order to compensate for costs incurred and income foregone resulting from maintaining farming practices that are important for meadow vipers and that are difficult to achieve through voluntary measures, such as not removing juniper bushes and refraining from activities that could be detrimental to the species;
- **Agri-environment and forestry-environment payments** (Article 39 & 47): linked to voluntary measures such as maintaining or re-introducing appropriate light grazing and mowing, removing scrub, restricting pesticide or fertiliser use, replanting juniper bushes or creating grass strips and other beneficial features;

[46] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

- **Reimbursement of non-productive investments** (Article 41 & 49): can cover a range of expenses from investments linked to agri-environment schemes to measures identified in management plans for an SPA, such as the 're)creation of new suitable habitats for the meadow viper, or investments enhancing the public amenity value of a Natura 2000 area;
- **Conservation of rural heritage** (Article 57)**:** can cover the cost of drawing up management plans for Natura 2000 sites hosting the species, restoring and upgrading the natural and cultural heritage, or launching awareness campaigns on the conservation of meadow vipers amongst farmers.

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as meadow vipers;
- **Farm Advisory Services (FAS)** (Article 24 & 25): to advise farmers on how to apply cross compliance rules, e.g. those set for the Habitats Directive that are beneficial, inter alia, for meadow vipers;
- **LEADER** (Article 61): integration of conservation of meadow vipers into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF MEADOW VIPER FRIENDLY MEASURES UNDER RDP

The following provide some examples of how different countries have introduced meadow viper friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details are provided in the outputs of the Wildlife and Sustainable Farming Initiative:
http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

HUNGARY

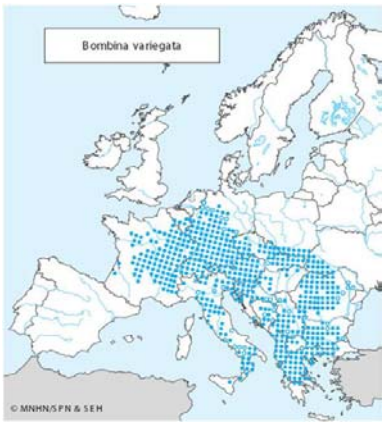
In **Hungary,** currently occupied viper habitats were included in two national agri-environment schemes in 2002 and 2003. There was also a national horizontal scheme for maintaining grasslands outside ESAs. Contracts were taken for years. In the Rural Development Plan for 2004-2006, development of habitat for *Vipera ursinii rakosiensis was* specifically stated as one of the objectives of the agri-environment measure B.3.5, grassland management in meadows of the Turján region.

In the meadows of Peszéradacs, all 15 farmers are currently managing known meadow viper sites under the scheme. A total of 16,242 ha of grassland (c. 1,700 ha of which is proven viper habitat) were included in the scheme. The meadows were previously used for hay making, but the introduction of the agri-environment scheme resulted in a change of land use on at least 1,300 ha, as grazing herds of Hungarian grey cattle were purchased thanks to additional funding by the scheme for keeping traditional breeds. Because the natural water table is not allowed to be lowered according to the scheme, some previously ploughed lands also joined the scheme under reconstruction of grassland. Previous fragmentation of important viper habitats may be eliminated after these sites are turned into grassland – a very valuable outcome.

In general, habitat structure has improved significantly following the introduction of grazing instead of mechanical hay making practices. Long term effects of these changes should be monitored, but on short term the overall state of these grasslands seems more suitable for meadow vipers. A LIFE-Nature project (LIFE04 NAT/HU/000116) includes the obligation to monitor changes, and conclusions will be reported to the Ministry of Agriculture, in order to include and fine-tune viper friendly management practices in the National Rural Development Plan. Due to a certain flexibility of the system, management (e.g. stocking densities) can be adjusted to account for yearly differences in grass production.

Yellow-bellied toad *Bombina variegata*

Habitats Directive – Annex II and IV



Bombina variegata is restricted to central and south-eastern Europe. The populations in Italy, south of the Po Valley are often treated as separate species *Bombina pachypus* (Apennine yellow-bellied toad)*.

	AT	BE°	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

° re-introduced

SPECIES INFORMATION

ECOLOGY

- Yellow-bellied toads are rather small, warty, aquatic toads with a brightly coloured underbelly;
- The adult toads are poisonous and have few natural enemies, the bright colours act as a warning signal to predators;
- Adult toads may live for more than 10 years in the wild;
- Reproduction is triggered by heavy rainfall over an extended period of time. Breeding starts 5-10 days after the toads have entered the water in spring and runs until August;
- The females produce several clutches per year during their prolonged breeding period; each clutch consists of 45 to 100 (sometimes more) eggs;
- The eggs are comparatively large and give rise to rapidly developing tadpoles;
- Egg-laying is distributed in time and space, which is seen as a risk-spreading strategy as the species often breeds in temporary pools which are permanently at risk of desiccation;
- In contrast to some other toads, yellow-bellied toads are relatively well adapted to dispersal over land in search of new breeding sites thanks to their sturdy skeleton and thick skin;
- Eggs and tadpoles are predated by leeches, aquatic beetles, dragonfly larvae, newts and various species of fish;
- Hibernation begins in September-October and ends in March-May, the toads winter in burrows, cracks, holes, under stones and logs and sometimes even in rodents' galleries;
- The diet consists of aquatic and terrestrial invertebrates.

HABITAT REQUIREMENTS

- Yellow-bellied toads occur in many types of wetland, including lakes, ponds, swamps, rivers, stream pools, springs (including mineral and thermal springs), puddles, reservoirs, gravel pits, ditches and even water-filled wheel ruts;
- These wetlands can be found in deciduous and mixed or coniferous forests, scrubland, meadows, floodplains and grasslands, and even in urban areas;
- Breeding habitats are typically non-shaded temporary pools with little aquatic vegetation within, or close to, woodland. Such sites are favoured as they rarely hold populations of fish which prey on the eggs and tadpoles;
- Because egg laying is spread out over time and space it needs a network of water habitats to breed in;
- Compared to most other amphibians, the water quality requirements of the species are relatively modest and it is even able to tolerate some small degree of water pollution;
- It is mainly an upland species, reaching its highest population densities in foothill and mountain regions;
- It is an opportunistic species which means it is sometimes also found in urban forest parks as well as artificial lakes and ponds.

THREATS

During the last century, many populations of yellow-bellied toad in Western Europe have disappeared or have experienced large declines, and the strongholds of species are now in Central and Eastern Europe. The causes of the decline are not always well understood but the main threats are thought to include:

- Loss of suitable habitats due to urbanisation, road and other infrastructure development, regulation of rivers, discharge of pollution, drainage of wetlands, filling in of ponds and ditches and intensification of human activities such as intensive forestry and agriculture;
- Loss of connectivity between populations caused by the fragmentation of suitable habitat. This makes the remaining, isolated populations vulnerable to catastrophic mortality, inbreeding depression etc;
- Drainage or water abstraction which lowers the water table, causing the temporary breeding ponds to disappear or to dry out too quickly in summer to allow successful breeding;
- Forestry work during reproduction: The toads often breed in water-filled wheel ruts or other small, artificial water bodies created by forestry work. Forestry work during the breeding season may drain the breeding sites and kill the toads by crushing in the wheel ruts;
- Cessation of cattle grazing which removes the need for maintaining ponds in grasslands as drinking places for livestock;
- Eutrophication or pollution of habitat caused by leaching of nutrients from surroundings, airborne nitrogen, pesticides and other agrochemicals, discharge of industrial chemicals etc;
- Collection: It is reported that in certain regions, the species is still collected for trade, scientific use, or to be used as bait even though the species is strictly protected under the Habitats Directive.

MANAGEMENT PRACTICES FAVOURABLE TO YELLOW-BELLIED TOADS

In parts of the range, especially in Western Europe, populations of yellow-bellied toad are now small and isolated, and immediate action should be taken in order to safeguard the species. In Central and Eastern Europe, it is still a locally common species in some areas and most populations are considered secure although up-to-date monitoring data are usually lacking. However, signs of decline also occur here, and conservation measures should be implemented in due time because it is usually more efficient to maintain a secure population than to try to restore a population which is on the verge of extinction.

The following farming and forestry practices will help:

- Maintain or restore breeding ponds in forest and farmlands: The best sites are temporary ponds that dry out in late summer or during autumn. Ponds should be sunny and with little aquatic vegetation. Preferably, several ponds should occur in a network to enable dispersal and increase breeding success;
- Maintain or restore dispersal corridors and sites suitable for hibernation: Humid corridors such as ditches in meadows, small brooks with surrounding natural vegetation etc are very important for dispersal between breeding sites as well as between breeding ponds and hibernation sites. To provide the latter, piles of stones and branches should be retained;
- Maintain cattle grazing and other extensive grassland management: Cattle grazing provides an incentive for maintaining or creating drinking ponds and the cattle keep the pond surroundings open. If grazing is not possible, mowing of the pond surroundings once or twice a year will also prevent excessive shading of the pond;
- Avoid eutrophication and pollution of breeding ponds: Yellow-bellied toads prefer ponds with a low or modest amount of aquatic vegetation. Therefore eutrophication should be counteracted by avoiding overstocking and by using only low levels of fertilizer or manure in the pond surroundings. Also pesticide use in the vicinity of the pond should be kept to a minimum;
- Avoid forestry work during reproduction: in core areas for the species, forestry work should preferably be avoided during the breeding season to avoid drainage of breeding sites and crushing of toads in wheel ruts (where they also may bury when the ruts begin to dry out).

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the yellow-bellied toad has particular habitat requirements that are unique to its ecology and lifecycle. However, several of the measures mentioned above can also benefit other species protected under the Habitats Directive that could use these ponds and humid corridors in open or forested landscapes, e.g.:

Great crested newt, *Triturus cristatus*
Common spadefoot, *Pelobates fuscus*
Agile frog, *Rana dalmatina*
Green toad, *Bufo viridis*

OBLIGATIONS ARISING FROM THE HABITATS DIRECTIVE

The yellow-bellied toad is protected under the EU Habitats Directive 92/43/EEC, it is listed in Annexes II and IV of the Directive. As a result, Member States must take the following measures to ensure its conservation:

General requirements

Member States must undertake measures that are designed to maintain or restore the yellow-bellied toad at a '*favourable conservation status'* in the EU (cf Article 2).

The conservation status of a species is taken as 'favourable' when:
- populations are maintaining themselves over the long term and are no longer showing signs of continuing decline;
- their natural range is not being reduced;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Protecting the species

Member States shall take the requisite measures to establish a system of strict protection for the yellow-bellied toad, and in particular to prohibit the following (cf Article 12):
- deliberate killing or capture by any method;
- deliberate disturbance, particularly during breeding, rearing, hibernation and migration;
- deliberate destruction or taking of eggs in the wild;

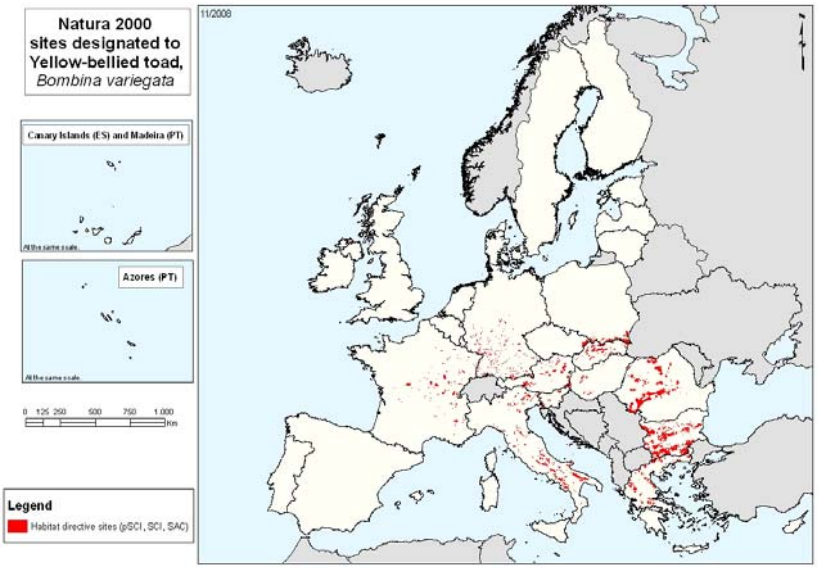
- deterioration or destruction of breeding sites or resting places;
- the keeping, sale and transport of specimens taken from the wild.

Derogations to the above are allowed in some special circumstances provided that no satisfactory alternatives exist and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status. (Article 16).

Protecting core habitats for the species under Natura 2000

Because the yellow-bellied toad is listed in Annex II of the Habitats Directive, Member States must, in addition to the general provisions referred to above, designate sites under Natura 2000 to maintain and restore the species to a favourable conservation status (cf Articles 1 and 3).

For wide-ranging species, such as the yellow-bellied toad, these sites shall correspond to the places within the natural range of the species which present the physical or biological factors essential to their life and reproduction. As of November 2008, a total of 1455 Sites of Community Importance (SCIs) have been designated in the EU where the yellow-bellied toad is recorded being present.



Managing Natura 2000 sites

Within these sites, Member States must take appropriate steps to avoid the deterioration of habitats of the yellow-bellied toad as well as its disturbance, in so far as such disturbance could be significant. Member States shall also take positive measures to conserve and restore the species to a favourable conservation status. This means establishing the necessary conservation measures corresponding to the ecological requirements of the species involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans (cf Article 6).

In practice, management plans are very often developed for each SCI within Natura 2000. Management plans are useful documents in that they:

- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;
- analyse the socio-economic and cultural context of the area and the interactions between different land uses and the species and habitats present;
- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases, if no viable alternatives exist, projects with significant negative impact on Natura 2000 sites can still go ahead if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive).

Protecting and managing landscape features outside Natura 2000

With a view to improving the ecological coherence of the Natura 2000 Network, Member States shall endeavour, in their land use planning and development policies, to maintain and restore landscape features which are of major importance for wild fauna and flora (cf Article 10). Such features could be linear structures (e.g. small rivers with their banks, hedgerows or rough herbaceous vegetation at field boundaries) that act as dispersal corridors or small ponds etc acting as stepping stones. Preservation and proper management of these landscape features could be of great value for the migration, dispersal and genetic exchange of species with limited mobility such as the yellow-bellied toad.

YELLOW-BELLIED TOAD CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

Obligations arising under the Birds Directive can be integrated into the CAP measures in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

One of the 19 Statutory Management Requirements (SMR) concerns the respect of the following articles of the Habitats Directive which are relevant for the yellow-bellied toad:

- Article 6: Within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

Another SMR concerns the respect of articles 4 and 5 of the Nitrates Directive (91/676/EEC). This Directive aims at reducing water pollution caused or induced by nitrates from agricultural sources. Because yellow-bellied toads are vulnerable to eutrophication of their breeding ponds, compliance with the Directive is of obvious benefit to the species. **Article 4** concerns the establishment of a code of good agricultural practice for reducing pollution by nitrates and **Article 5** is about establishing action programmes in respect of nitrate vulnerable zones.

In addition to meeting the SMRs, farmers must also keep farms in good agricultural and environmental conditions (GAEC) which requires a minimum level of maintenance through compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture;
- Establishment of buffer strips along water courses.

Member States can also voluntarily set standards for[47]:

- Minimum livestock stocking rates or/and appropriate regimes;
- Establishment and/or retention of habitats.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit yellow-bellied toads:

- **Less Favoured Area payments** (Article 37): linked to maintaining existing farming practices that help continue extensive management in areas threatened by abandonment;
- **Natura 2000 payments** (Article 38 & 46): in order to compensate for costs incurred and income foregone resulting from legal or administrative restrictions on farming within Natura 2000 areas such as maintaining suitable breeding ponds and refraining from carrying out forestry activities during the reproduction season;
- **Agri-environment and forestry-environment payments** (Article 39 & 47): linked to voluntary measures such as maintaining or restoring unshaded ponds in grassland, maintaining ditches and other humid corridors, keeping stone piles etc used for hibernation, maintaining cattle grazing, reducing fertilizer and pesticide use in pond surroundings etc;
- **Reimbursement of non-productive investments** (Article 41 & 49): can cover a range of expenses from investments linked to agri-environment or forest-environment schemes to measures identified in management plans for an SPA, such as the creation of new breeding ponds, or investments enhancing the public amenity value of a Natura 2000 area or a forest;
- **Conservation of rural heritage** (Article 57)**:** can cover the cost of drawing up management plans for Natura 2000 sites hosting the species, restoring and upgrading the natural and cultural heritage such as pastures with natural drinking ponds, or launching awareness campaigns on the conservation requirements of yellow-bellied toads amongst farmers.

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as yellow-bellied toads;
- **Farm Advisory Services (FAS)** (Article 24 of RDR): the cost of obtaining advisory services on how to meet the minimum cross compliance requirements, such as those under the Habitats Directive can be reimbursed to farmers, foresters and other land managers, which can be beneficial to, inter alia, great bustards.
- **LEADER** (Article 61): integration of conservation of yellow-bellied toads into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF YELLOW-BELLIED TOAD FRIENDLY MEASURES UNDER RDP

The following provide some examples of how some countries have introduced yellow-bellied toad friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details are provided in the Wildlife and Sustainable Farming Initiative: http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

FRANCE

Management of habitats for yellow-bellied toad in France is supported mainly through Natura 2000 forest agreements and agri-environment measures. The scheme for **Natura 2000 forest agreements** was established in late 2004 and remains almost unchanged in the programming period 2007-2013. It includes at least three measures potentially useful for or directly targeted at yellow-bellied toads:

[47] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

Restoration of forest ponds. This measure supports the keeping or developing of a network of forest ponds, with the following activities being eligible for support:

- reshaping of banks with gentle slopes;
- dredging;
- sealing the bottom of the pond with clay;
- clearing of surroundings or other management for the good functioning of the pond;
- planting vegetation or trees;
- manual removal of the woody vegetation (no chemical treatment allowed);
- devitalization of trees using ring belt;
- export of woody vegetation and rubbles at, at least, 20 meters for sensitive habitats;
- export of macro wastes;
- expert advice.

Protection of reproduction habitat with fences. This measure provides funding for fences and thereby grazing of different habitat types. It will diminish the threat from overgrowth and loss of habitat for the species. Water bodies that can be used for breeding should indirectly or directly result from this measure.

Additional investments to reduce the impact of forest tracks and roads. This measure provides support for the closing of roads and tracks that have been used in relation to forestry activities. As to construction of other roads, support can be made conditional upon, e.g., fencing to prevent frogs and toads from entering the road.

The scheme for **agri-environment measures** under the French Rural Development Programme 2007-2013 is dedicated to fulfilling obligations related to the Water Framework Directive and to Natura 2000. In addition to measures dedicated to maintaining cattle breeding and pastures, which are of potential value to the species, there are at least two measures of direct relevance to yellow-bellied toad conservation:

Management of channels, ditches and rivulets (code: LINEA_06, up to 2,84 €/meter): Funding to secure small linear water bodies will typically be beneficial for the species.

Management of ponds (code: LINEA_07, up to 135 € per pond per year): This is a continuation of a scheme from the previous programming period and is focused on Natura 2000 agreements for rural habitat which is neither farmed nor forested. The scheme supports the implementation of conservation actions in ponds or other hydraulic components, with specific measures being proposed. When there is local support, as in Poitou-Charentes or Isère where action plans for yellow-bellied toad exist, the scheme may be helpful for the conservation of the species.

ITALY

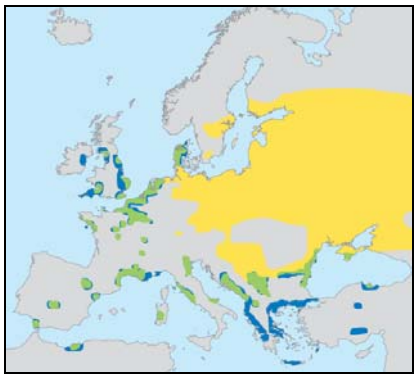
The regional rural development plans include under axis 2 ('Amelioration of the environment and of the rural landscape') a number of specific measures for the creation and maintenance of wetlands in order to increase biodiversity and to protect and conserve habitats, flora and fauna of the EU Habitats and Birds Directives. In addition, extensive management of grassland can also be supported. The description of the measures is very detailed and could be used for conservation actions targeted at (Apennine) yellow-bellied toads. The payments amount to 200 €/ha/year for maintenance and 1.17 €/m^2/year for creation of wetlands.

The payments have already been used with significant results in the past programming period (2000-2006), e.g. in the Emilia-Romagna Region, where:

- about 1,100 hectares of permanent wetlands (freshwater marshes having 75% of their surface permanently submerged) were created, allowing the presence of many waterfowl species, amphibians, reptiles, and typical emergent and submerged vegetation;
- 2,357 hectares of permanent meadows with scrub patches were created. This kind of habitat is often created close to marshy meadows and/or permanent wetlands and is complementary to the former from an ecological point of view;
- 4,500 ha of wetlands were restored.

Bittern *Botaurus stellaris*

Birds Directive – Annex I



Botaurus stellaris breeds throughout Europe, from central and eastern Asia, Russia to Japan and China.*

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

SPECIES INFORMATION

ECOLOGY

- In Europe, bitterns are widespread but patchily distributed in the west and more continuously distributed in the east;
- Populations in southern and central Europe are mainly resident, whilst those further north tend to be migratory;
- Both males and females are solitary animals, coming together only briefly for mating;
- Males are strongly territorial and will aggressively defend their range from other males;
- They are very secretive birds, and often the only sign of their presence is the sound of the males deep booming call;
- The nest consists of a loose platform of dead reed stems placed amongst standing reeds some 10-15 cm off the ground;
- The species has only one brood a year, 4-5 eggs are laid in April-May. The female is the only one to feed the young;
- The young can leave the nest after 12 days but often stay longer (up to 30 days). Fledging takes place between June and early August in northern Europe and in May-June in Mediterranean countries;
- Young birds disperse to surrounding reedbeds;
- The bitterns are fairly flexible in their choice of food, which is predominantly fish, eels, amphibians and insects.

* *Drawing courtesy of RSPB*

HABITAT REQUIREMENTS

- Bitterns are restricted to lowland swamps, marshes and other densely vegetated wetlands with areas of shallow unfluctuating standing water. They tolerate brackish water which means they also occur in estuaries, delta marshes and coastal reedbeds;
- They are found mainly in reedbeds which are in early stages of natural succession sometimes mixed in with other fen plants. In Italy the species is also found in rice fields;
- The bittern prefers a mosaic of wetland habitats containing reedbeds of varying ages, open water and flooded reed edges. The proportion of each habitat varies across its range (old reeds are important for nesting);
- The size of the male's home range is mainly dependent on the quality of the habitat and the presence of other males. It can vary considerably from 1 per 2ha in particularly favourable areas to 1 per 40-50 ha in other areas;
- Research in England originally indicated that booming males required a reedbed of at least 20 hectares in extent, but it appears that smaller sites may be utilised provided that other feeding areas are available nearby. In continental Europe, where there are highly productive reedbeds, bitterns can be found in some much smaller reedbeds, but these birds are dependent on the presence of a network of reed-fringed dykes or more open wetland habitats for foraging;
- Males are largely faithful to sites year after year but may move to other sites during the winter.

THREATS

The causes of decline in bittern populations are relatively well known and are more or less the same across the species range in Europe (only the most critical threats are listed here):

- Loss, degradation and fragmentation of habitats: Reedbeds represent an early stage of natural succession. In the past, natural processes such as severe floods and ice floes would keep back succession but nowadays most reedbeds are part of highly modified and fragmented wetland systems. The loss of these natural process is caused by human induced factors such as drainage and excessive water abstraction that causes the reedbeds to dry out. In many locations, only active, continuous management (involving inter alia raising water levels, harvesting and burning reedbeds, cutting invasive scrub or digging out of the reedbed) can prevent reedbeds from turning into other types of habitats that are far less suitable for wetland birds like the bittern;

- Food availability: This is closely linked to habitat degradation which leads to a lack of food during the breeding season. Starvation is the main cause of mortality amongst chicks. The sharp decline in eel numbers in parts of Europe is likely to have a significant impact. In some cases it may be that there is enough food present but it is not accessible, for instance the dykes may be too deep and steep sided to be used for foraging by bitterns;

- Pollution: Water quality is very important. Heavy silt loads can exacerbate the drying out of reedbeds, overstocking of fishponds can cause eutrophication. Eutrophication is also caused by excessive use of pesticides and fertilisers in the surrounding agricultural land. They are known to degrade the quality of the reeds and can lead to the development of anoxic sediments and toxic algal blooms. Bitterns are also at risk from heavy metals since they are at the top of the food chain;

- Predation: Predation of nests is a problem in many EU countries. Wild boars as well as invasive alien species like the American mink and Raccoon dog are amongst the most common predators;

- Human disturbance and recreational activities: can cause damage to the habitat (e.g. trampling in the reeds) and disturbance to the species at critical times. Motorised watersports such as water-skiing or jet skies can also cause noise disturbance and physical damage from the wake of boats etc.;

- Inappropriate commercial reed cutting: The commercial management of reedbeds is often beneficial for bitterns as it keeps back succession but problems do occur if too large an area is cut in any one year or if reeds are cut too late. This can result in a lack of adequate cover in winter and a lack of suitable nesting habitats in spring;

- Abandonment of grazing in wetland margins: This could lead to rapid succession and encroachment of other vegetation types that are not favoured by bitterns;
- Harsh winters: can have a significant impact on populations. Hard weather fluctuations are a natural process but there is some concern that the pace of population recovery is now too slow (indicating poor breeding success) and suitable wintering sites in south and west of Europe may no longer be available;
- Salt water intrusion and sea level rise: The collapse of sea defences and sea level rise could damage and degrade coastal wetlands as the influx of salt water causes changes to both vegetation composition and food availability.

MANAGEMENT PRACTICES FAVOURABLE TO BITTERN

Since habitat loss and degradation is considered to be the most significant threat to bittern populations in Europe, measures to protect and restore existing reedbeds is of major importance. Because reedbeds are unstable habitats, they require constant management to maintain the transitional phase of reedbed development favoured by bitterns. Two basic approaches to conservation management are required if natural processes are absent. The first is to retard the drying out of the reedbed, the second is to remove sections of reedbed on a rotational basis to ensure continuous provision of young reedbed.

Although modern farming rarely includes activities in wetlands, farming practices can play a role in conserving reedbeds for bitterns through preventive actions on the one hand (no drainage, limitation in fertiliser/pesticide use in surrounding areas, set aside schemes) and through regular management activities on the other (reedcutting, burning and livestock grazing, habitat restoration). These are described further below:

- Preventing further loss of reedbed: by limiting the further drainage or the ploughing up of wetlands and controlling any alterations in water levels both within existing SPAs and in the wider countryside;
- Avoiding excessive water abstraction or inappropriate water levels: which could lead to the drying out and fragmentation of the reedbeds. The ideal scenario is for reedbeds to be flooded in winter/ spring and for them to retain water during the summer as well. If sluices, ditches, bunds etc are introduced to help regulate the water flow within the area these should be developed in a way that makes them accessible to bitterns;
- Limit use of pesticides, fertilisers or spreading of manure: in areas immediately surrounding the reedbeds and if possible in the wider catchment area;
- Avoid disturbance during critical periods: such as driving of tractors along reedbed margins, or hunting near bittern nest sites;
- Encouraging a large mosaic structure of reedbeds: This is especially important in commercial reedbeds. Regular cutting of reeds is beneficial as it helps stem succession, but it is important that not all of the area is cut at once and that some reed patches are left uncut to create a mosaic structure. Such patches ensure closed vegetation cover suitable for nesting already at the beginning of the breeding season. Homogeneous reeds with even-aged stems are usually not preferred because they are too dense. The ideal reed harvesting practice could be a rotational regime where at least 20% of the reed is left uncut per year;
- Adjust reed cutting times: The cutting period should also be limited in time to avoid being done too late in season when the bitterns have settled on their winter territories or too early that it removes suitable nesting sites. Current good practice suggests that the cutting period should be limited to 15 Nov – 15 March;
- Controlled burning: of reedbeds, this traditional management technique is done during the winter when the reed is dead and dry. Like reed cutting it helps to clear away accumulated litter and maintain early succession stages but it must be carefully regulated to avoid causing damage to the bittern's habitats, e.g. by burning only patches of reeds at a time to maintain a mosaic structure;

- Grazing of reedbed margins: is beneficial as it helps keep the vegetation open and in a mosaic structure with abundant growth in summer but eaten back in winter; the grazing intensity should be kept low (c 0.5 LU/ha from 15 August to 15 November);

- Scrub removal: Removal of late succession plants such as willows, alder and birch is mostly done by raising water levels, cutting and burning or grubbing;

- Reedbed restoration: to help restore or recreate reedbeds in agricultural areas adjacent to wetlands or on former drained wetlands, or next to fishponds. This could help increase substantially the area of suitable wetland.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the bittern has particular habitat requirements that are unique to its lifecycle and to its long term survival. However, as the bittern is essentially a species of reedbeds and marshes, several of the measures mentioned above would also benefit other species protected under the Birds Directive that are typical of these wetlands:

Purple Heron, *Ardea purpurea*	Marsh Harrier, *Circus aeruginosus*
Water Rail, *Rallus aquaticus*	Savi's Warbler, *Locustella luscinioides*
Little Crake, *Porzana parva*	Moustached Warbler, *Acrocephalus melanopogon*
Bearded Tit, *Panurus biarmicus*	Great Reed Warbler, *Acrocephalus arundinaceus*

In relation to the Habitats Directive certain taxonomical groups could benefit from implementation of the measures, such as dragonflies and other insect groups; one example of a listed species is the green hawker *Aeshna viridis.*

OBLIGATIONS ARISING FROM THE BIRDS DIRECTIVE

The bittern is protected under the EU Birds Directive 79/409/EEC, listed in Annex I of the Directive. As a result, Member States must take the following measures to ensure its conservation.

General requirements

Member States are required to take the requisite measures to maintain the population of the bittern at a level which corresponds in particular to its ecological, scientific and cultural requirements, or to adapt the population of the species to that level (cf Article 2).

To achieve this, Member States are required to preserve, maintain or re-establish a sufficient diversity and area of habitats for the bittern which should include primarily the following (cf Article 3):
- creation of protected areas;
- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected area;
- re-establishment of destroyed habitats;
- creation of habitats.

Protecting the species

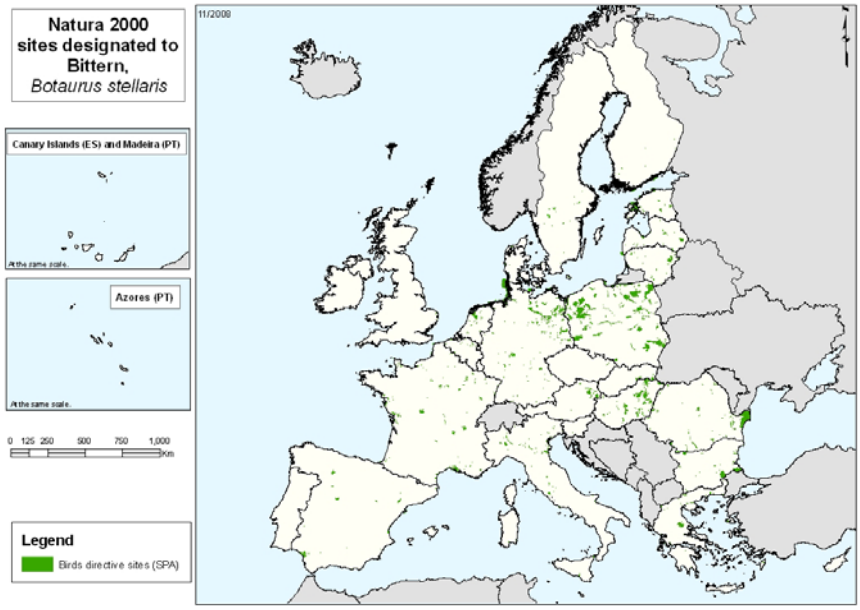
Member States should take the requisite measures to establish a general system of protection for the bittern throughout its natural range within Europe, and in particular to prohibit the following (cf Art 5):
- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs;

- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping birds, the hunting and capture of which is prohibited;
- sale, transport for sale, keeping for sale and the offering for sale of live or dead birds and of any readily recognizable parts or derivatives of these birds (cf Article 6).

Member States may derogate from these provisions under a number of circumstances (eg in the interest of public health, or judicious use) where there is no other satisfactory solution and where the derogations do not affect the overall conservation status of the species (cf Article 9).

Protecting core habitats for the species under Natura 2000

The bittern is listed in Annex I of the Birds Directive in view of its vulnerable conservation state. This means that, in addition to the general provisions referred to above, Member States must also classify the most suitable territories in number and size as Special Protection Areas under Natura 2000 to ensure the survival and reproduction of the species across its entire area of distribution within the EU (cf Article 4). As of November 2008, 1050 SPAs have been designated in the EU-27 where the bittern is indicated to be present.



Managing Natura 2000 sites

Within these SPAs, Member States must take appropriate steps to avoid the deterioration of habitats of the bittern as well as its disturbance, in so far as such disturbance could be significant.

Measures must also be taken to manage, maintain or, if necessary, restore areas for the bittern both within SPAs and outside so that the objectives of the Directive are achieved (cf Art 3). The Birds Directive does not elaborate how this should be done as this is up to each Member State to decide but, in practice, management plans are very often developed for each SPA within Natura 2000.
Management plans are useful documents in that they:

- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;
- analyse the socio-economic and cultural context of the area and the interactions between different land uses and the species and habitats present;
- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases, if no viable alternatives exist, projects with significant negative impact on Natura 2000 sites can still go ahead if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive which apply to SPAs classified under the Birds Directive).

BITTERN CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

The obligations arising under the Birds and Habitats Directives can be integrated into the CAP measures in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

In the case of the **Birds Directive** one of the 19 SMRs concerns the requirements resulting from the following articles that must be respected by farmers:

→ Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;

→ Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;

→ Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

In the case of SPAs another SMR based on the **Habitats Directive**, must be respected:

- Article 6: within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

The exact requirements of the above mentioned SMRs vary between Member States and depend on the way the requirements of the Birds and Habitats Directives are translated into their laws and administrative measures (e.g. management plans for Natura 2000 sites) applicable to farmers, and consequently cross compliance.

In addition to meeting the SMRs, farmers must also keep farms in good agricultural and environmental conditions (GAEC) which requires a minimum level of maintenance through compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Establishment of buffer strips along water courses.

Member States can also voluntarily set standards for[48]:

- Minimum livestock stocking rates or/and appropriate regimes;
- Establishment and/or retention of habitats;

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit bitterns:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;
- **Natura 2000 payments:** (Article 38) in order to compensate for costs incurred and income foregone resulting from legal or administrative restrictions on farming within Natura 2000 areas. such as allowing continued winter flooding or not intensifying grassland management;
- **Agri-environmental schemes:** (Article 39) linked to voluntary measures such as rotational or mosaic reed cutting, adjustments to reed cutting times, seasonal livestock grazing, limited use of pesticides and fertilisers, controlled burning, scrub removal;
- **Reimbursement of non-productive investments**: (Article 41) can cover a range of investments from on-farm investments linked AE schemes or to measures identified in management plans for an SPA such as restoring the natural hydrology of reedbeds or removing invading vegetation or which enhance the public amenity value of a Natura 2000 area;
- **Conservation of rural heritage** (Article 57)**:** for instance to cover the cost of drawing up management plans for Natura 2000 sites hosting bitterns, undertaking habitat restoration measures in areas currently or potentially suitable for bitterns, launching awareness campaigns on bittern conservation requirements amongst farmers.

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as bitterns;
- **Farm Advisory Services (FAS)** (Articles 24 and 25): to advise farmers on how to apply cross compliance rules e.g. those based on the Habitats and Birds Directives that are beneficial, inter alia, for bitterns:
- **LEADER** (Article 61): integration of bittern conservation into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF BITTERN FRIENDLY MEASURES UNDER RDP

The following provide some examples of how different countries have introduced bittern friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details are provided in the Wildlife and Sustainable Farming Initiative: http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

UNITED KINGDOM

In the **UK**, various agri-environment schemes have been in use since 1987 in an attempt to halt and reverse the widespread loss of wildlife habitats in farmland. The agri-environment scheme under the Rural Development Programme for 2007-2013 comprises three elements: Entry Level Stewardship (ELS), Organic Entry Level Stewardship (OELS), and Higher Level Stewardship (HLS), which is a more targeted scheme aimed at the most valuable habitats and environmental features that require locally adapted management.

[48] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

More specifically, the following HLS options may benefit bittern habitat:

- **Option WT11 maintenance or restoration of reedbeds (89 €/ha):** aims at maintaining or restoring reedbeds to provide a valuable habitat for birds, insects and small mammals. Management includes: maintaining water control structures in good working order, controlling scrub cover and retaining some open water, cleaning ditches and foot-drains no more than once every 5 years, cutting ditch banks in rotation, no use of fertilizer and no use of poor quality water to top-up water levels. Restoration may include clearing of scrub, cutting reeds in the summer, implementing a water management regime and restoring the ditch network. Initial expenses for restoration or installation of water control structures and restoration of ditches may be funded under a Capital Works Plan (non-productive investments under the EAFRD Regulation);
- **Option WT12 creation of reedbeds (562 €/ha):** aims at creating new reedbeds on land of existing low conservation interest. It is suitable for use on arable, lay grassland or permanent improved grassland. The site must have a reliable summer water supply as it is necessary to maintain up to 30 cm depth of water over part of the site in the summer months. Establishment will be informed by a management plan, which details the design and construction of the reedbed and includes creating a variety of land forms with areas of higher ground and areas of shallow open water, excavating ditches, installing bunds and sluices, and establishing reeds;
- **Option WT18 wetland cutting supplement (518 €/ha):** supports a cutting regime where this is the most appropriate form of management. This option may also help maintaining local techniques and traditions that may otherwise disappear.

FRANCE

For the 2000-2006 period, a new agri-environmental measure for extensive exploitation of reedbeds was proposed in the national RDP. However, only 3 of the 21 regions adopted this possibility at local level. The scheme was also very complex and it became mandatory to sign a contract (CAD) for the entire holding instead of only part of it which discouraged farmers. However, several other successful experiences with reedbeds management in France led to the maintenance and improvement of the proposed measure in the new 2007-2013 French Rural Development Program. This is now called the measure “MILIEU 04 – reedbed’s exploitation in favour of biodiversity” (M.A.P. 2007) and, again, the details are decided at a eegional (local) level.

This measure aims at encouraging management practices which will maintain a favourable conservation status of the habitat especially in favour of avifauna and insects (dragonflies). It also favours the maintenance and management of the reedbeds for their typical landscape features and for their water purification capabilities. The commitment applies in reedbeds usually exploited every year for thatch production. The farming subsidies are calculated by comparing yield production on the overall surface with yield production on only a part of the reedbed (specified at local level), the other part being laid fallow to offer a shelter for the avifauna.

The following details have to be provided at local level:

- To define and to locate eligible reedbeds for each defined territory (as a Natura 2000 site);
- To define at this level, the conditions of reedbeds exploitation:
  - The minimal surface of reed not to be cut each year : it must be at least 20 % of the total surface committed and 80 % at the most (fixed or revolving);
  - The types of material and machinery authorized for cutting;
  - The period where mechanical cutting is prohibited (breeding periods);
  - If needed, schemes for fight against alien invasive species: list of species, description of removal methods (chemical destruction being prohibited), and prescriptions on waste disposal.

Common Hamster *Cricetus cricetus*

Habitats Directive – Annex IV [49]

Cricetus cricetus has a wide range that extends from Western Europe to Russia and Kazaskstan and beyond.

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

SPECIES INFORMATION

ECOLOGY

- The common hamster is a small mammal that lives for 1-2 years; because it is so short-lived it needs to produce 2 litters a year just to maintain its population levels;
- The hamster lives in underground burrows. A typical burrow is usually several meters long and 0.5 – 2 m below the surface. It consists of a dwelling chamber, food stores, and toilet pits;
- Hamsters are very territorial and one burrow is used by one individual only (except for when the mother has young);
- Males occupy a larger territory (0,5-2ha) than females (0,1-0,6ha). The male is polygamous and will have several females within its territory;
- Main period of reproduction is from early June to end of August. Each female usually produces two litters a year, the gestation period is 17-21 days and litter size can vary from 2-8 young depending on local conditions and food availability. The young become independent after 4-5 weeks;
- Hamsters have occasional population explosions. In outbreak years, populations can increase 100 fold. The causes are not well known. Within the EU such population explosions have not occurred for many years, probably because of the species' poor conservation status;
- Hamsters often hibernate in their burrows during the winter; hibernation usually lasts from September/October to April but hibernation periods can alternate with wakeful phases during which the animal feeds on its winter stores;
- The hamster's diet consists of wheat and other cereals, clover, alfalfa, bean, rape, beet, potato tubers… which are collected from the ground. Invertebrates and small vertebrates make up 10-15% of the diet. Hamsters also store food in their burrows to see them through the winter.

[49] *Except for Hungary where it is listed in annex V*

HABITAT REQUIREMENTS

- The hamster's original habitat is fertile lowland steppic grassland. But most of this habitat type has been converted to agricultural land in western parts of the species range. As a result, in the EU, the hamster is mostly found in agricultural fields;
- Optimal habitat usually coincides with the most productive agricultural areas;
- Hamsters occur in most annual crops, but cereals and perennial fodder crops are preferred. Perennial crops and mixtures of grasses and legumes are particularly important as they offer more continuous food availability, shelter and lower disturbance than cereal crops; they also act as refuges when other habitats have been ploughed up;
- Winter cereals offer more suitable habitats than summer cereals;
- Field edges, roadsides and ditches are sometimes occupied in times of need, and offer an important source of cover, invertebrates and wild plants;
- Hamsters also occur in meadows and fallow land, but densities are much lower than in arable land.

THREATS

The hamster now has a very low population and highly fragmented distribution in countries like the Netherlands, Belgium, France and Germany. Further east, in Hungary, the Czech Republic, Slovakia and Romania the species is still relatively widespread (sometimes even considered an agricultural pest) but here too it has suffered a severe decline and could be on the verge of collapse.

Threats therefore vary in intensity from east to west, the most critical include:

- Changes in agricultural crops: Hamsters prefer two kinds of crops (wheat, rye, barley and oats) and perennial legumes (alfalfa, clover, grass-legume mix). The increase in maize cultivation at the expense of these crops is detrimental to the species. Also maize (and sugar beet) provide no cover in spring when animals move around to mate, leaving them highly vulnerable to predation;
- Simplification of rotations: Harvesting or ploughing that affects large areas simultaneously leaves no suitable habitat for the species. A diverse crop structure and staggering of harvesting is important;
- Improved harvesting techniques: Modern machinery leaves less food on the ground. Hamsters, especially young ones, are therefore more prone to starvation. Shorter stubbles also increases exposure to predators.
- Early tillage: Stubble fields are important feeding places for hamsters and the retention of stubble after harvesting enables the animals, particularly the young and females to gather enough food for the winter. The practice of ploughing shortly after harvest removes both cover and food;
- Deep ploughing: Burrows are usually only 50cm – 2m below the surface. Deep ploughing can destroy the burrows and any animals within them, particularly the young who start out with simple relatively shallow burrows. Modern machinery can also kill animals on the surface;
- Irrigation and application of liquid manure: may cause flooding or fouling of burrows;
- Abandonment of cultivation: causes the loss of suitable habitat and food sources. Although the species can also survive in meadows and habitats that develop early on following the abandonment of cultivation, the carrying capacity is significantly lower (probably due to food shortages);
- Persecution: Until recently the hamster was relatively common and in some countries was considered to be an agricultural pest. Consequently large numbers have been trapped, poisoned or killed to prevent damage to crops and grain stores. This deliberate killing has had a very significant impact on the species and is a major cause of its decline;
- Predation: is a key cause of mortality especially in areas with small vulnerable populations combined with an increase in density of generalist predators such as foxes and corvids;

- Changes in land use and infrastructure development: Small fragmented populations, particularly in western Europe are especially vulnerable to changing land uses and the replacement of agricultural land with other forms of land use such as urbanisation or transport infrastructure.

A secure population is considered to contain around 1500 animals occupying a territory of 300-600ha, corresponding to 2-4 burrows per ha. Densities lower than 2 burrows per ha are generally considered unsustainable if no action is taken to actively increase the population and range of the species. It is therefore much more efficient and cost-effective from a conservation perspective to maintain a secure population than to try to bring a species back from the brink of extinction once the population has collapsed.

FARMING PRACTICES FAVOURABLE TO HAMSTERS

To ensure the continued survival of the common hamster in the EU, it is necessary to take measures to safeguard both the species in its own right, and its habitats. Generally, conservation measures are less onerous and should therefore be easier to integrate into existing farming practices in Eastern European countries where the population has not yet crashed. The following farming practices will help:

- Maintain existing crops: which are favoured by hamsters such as wheat, rye, barley and oats and/or perennial legumes such as alfalfa, clover, grass-legume mix;
- Maintain crop diversity: Although hamsters can survive in monocultures, a certain diversity of crops is beneficial as it ensures a continuous food supply and minimises the risk of large areas being harvested or ploughed over in one go. A mixture of cereals and perennial legumes is particularly useful because the latter acts as a refuge after ploughing, harvesting and other farm activities. Such perennial crops should cover at least 10% of the area;
- Use late varieties of cereals: Late varieties remain longer in the fields before harvest, providing cover and feeding opportunities for hamsters over a prolonged period;
- Adapt existing farming techniques: to make them hamster friendly e.g. staggering harvesting times within a field over several weeks, leaving high stubble on all, or large parts of, the field until the following spring, delaying tillage until hamsters have stopped hibernating, ploughing not deeper than 25-30 cm;
- Maintain field edges and unharvested strips of cereal: to provide cover and additional food sources;
- Promote the re-introduction of suitable crops: in areas where the population is highly fragmented and at risk of extinction in order to expand its range and reduce the risk of catastrophic events that could wipe out small isolated populations. This could involve the planting of a suitable mix of crops and using farming techniques that are tailored to the requirements of the hamster;
- Stop deliberate killing and trapping for fur: in countries where the species is listed in Annex IV of the Habitats Directive (Austria, Belgium, Bulgaria, Czech Republic, Germany, France, Netherlands, Poland, Romania, Slovakia and Slovenia) hamster should be strictly protected but derogations can be granted to prevent significant damages to crops. In the case of Hungary (where the species is listed on Annex V of the Habitats Directive), the killing of hamsters must be sufficiently regulated to ensure that their exploitation is compatible with their being maintained in a favourable conservation status;
- Regulate population controls: if derogations are applied to the strict protection regime – for instance because there is a sudden population explosion that leads to serious damage to crops – it must be done in full compliance with the provisions of Article 16 of the Habitats Directive;
- Ban use of rodenticides in areas with existing hamster populations and restrict use of pesticides;
- Avoid irrigation and application of liquid manure: which may cause flooding or fouling of burrows;
- Control infrastructure development: such as urbanisation or transport infrastructure in areas where the species lives in small fragmented populations, particularly in Western Europe to ensure that such activities do not cause a further decline or fragmentation of the species.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the hamster has particular habitat requirements that are unique to its lifecycle. However, several of the measures mentioned above would also benefit other species, some of which are protected under the Habitats and Birds Directives that are typical of these habitats, such as the:

- Romanian hamster, *Mesocricetus newtoni*
- Steppe polecat, *Mustela eversmanii*
- Marbled polecat, *Vormela peregusna*
- Souslik *Spermophilus suslicus*

Harvest restrictions benefit field-nesting bird species that often loose their brood because of harvesting:
Montagu's Harrier *Circus pygargus*
Quail *Coturnix coturnix*.

Postponement of ploughing and retention of stubble will benefit species like:

- Grey Partridge, *Perdix perdix*
- Yellowhammer, *Emberiza citrinella*
- Skylark, *Alauda arvensis*
- Corn Bunting *Miliaria calandra*

Hamsters are a favourite prey of several raptors, which thus indirectly benefit from hamster friendly management measures:

- Imperial Eagle *Aquila heliaca*,
- Saker falcon *Falco cherrug*
- Booted eagle *Hieraaetus pennatus*
- Red footed falcon, *Falco vespertinus*

OBLIGATIONS ARISING FROM THE HABITATS DIRECTIVE

The hamster[50] is protected under annex the EU Habitats Directive 92/72/EC, it is listed in Annex IV of the Directive (except for Hungary where it is listed under Annex V). As a result, Member States must take the following measures to ensure its conservation.

General requirements

Member States must undertake measures that are designed to maintain or restore the hamster at a '*favourable conservation status'* in the EU (cf Article 2).

The conservation status of a species is taken as 'favourable' when:

- populations are maintaining themselves over the long term and no longer showing signs of continuing decline;
- their natural range is not being reduced;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis.

Protecting the species

The hamster is listed in Annex IV of the Habitats Directive for all countries except Hungary. Member States (except Hungary) should therefore take the requisite measures to establish a general system of protection for the hamster, and in particular to prohibit the following (cf Art 12):

- deliberate killing or capture by any method;
- deliberate disturbance, particularly during breeding, rearing, hibernation and migration;
- deliberate destruction or taking of eggs in the wild;
- deterioration or destruction of breeding sites or resting places;
- the keeping, sale and transport of specimens the from the wild.

Derogations to the above are allowed in some special circumstances (for instance to prevent serious damage to crops) provided that no satisfactory alternatives exist and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status. (Article 16).

[50] *The Hamster is not listed under Annex II of the Directive which means that Member States are not obligated to designate sites for the species under the Natura 2000 Network.*

In such cases, Member States must inform the Commission every two years on:

- the reason for the derogation, including the nature of the risk, and if appropriate reference to alternative rejected and scientific data used;
- the means, devices and methods authorized for the caption or killing of the species and the reasons for their use;
- the circumstances of when and where such derogations are granted;
- the authority empowered to issue such derogations;
- the supervisory measures used and results obtained.

In the case of Hungary, the species has been listed in Annex V of the Habitats Directive. As a consequence, Hungary may, taking account of surveillance done of the species conservation status, allow the exploitation and taking from the wild of hamsters, provided it ensures that such activities are compatible with the hamster being maintained at a favourable conservation status (Article 14).

In this respect, the Member State must continue the surveillance of the species' conservation status and, if deemed necessary, introduce measures to regulate such activities, for instance by regulating the periods and/or methods of taking specimens, establishing a system of licences, assessing the effect of the measures adopted, introducing temporary or local prohibitions (Article 16).

HAMSTER CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

The obligations arising under the Habitats Directive for the hamster can be integrated into agricultural policy in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

There are no Statutory Management Requirements (SMR) of the CAP that apply to hamster as it is not a species for which site designation under Natura 2000 is required, and the requirements of Article 12 of the Habitats Directive are not part of Statutory Management Requirements.

Nevertheless, farmers must keep farms in good agricultural and environmental conditions (GAEC) which requires a minimum level of maintenance through compulsory standards, for instance, for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards which can be beneficial to hamsters, for example, for[51]:

- Establishment and/or retention of habitats;

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit hamsters:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;

[51] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

- **Agri-environmental schemes:** (Article 39) linked to voluntary measures such as maintaining or re-introducing appropriate mixtures of crops favoured by hamsters, using late varieties of cereals, staggering harvesting times within a large field, leaving high stubble until the following spring, delaying tillage until April, ploughing no deeper than 25-30cm; maintaining field edges and unharvested strips, preventing or regulating the deliberate capture or killing of hamsters, banning use of rodenticides, restricting use of pesticides and seed treatment products, avoiding irrigation and application of liquid manure;
- **Reimbursement of non-productive investments**: (Article 41) can cover a range of investments from on-farm investments linked AE schemes or to measures identified in species action plans such as restoring and reconnecting suitable habitats for the species;
- **Conservation of rural heritage** (Article 57)**:** drawing up of management plans for places of high natural value, environmental awareness actions regarding the conservation needs of the hamster, and investments associated with the maintenance, restoration and upgrading of the natural heritage and with the development of high nature value sites;

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as hamsters;
- **LEADER** (Article 61): integration of hamster conservation into area based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF HAMSTER FRIENDLY MEASURES UNDER RDP

The following provide some examples of how countries have introduced hamster friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details are provided on the Wildlife and Sustainable Farming Initiative website: http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

FRANCE

In **France**, the first conservation plan for Common Hamster was implemented during 2000-2004. The plan included several measures for promoting hamster friendly management of farmland, based upon voluntary, contract-based agreements with farmers.

In 2007, France developed a second action plan for the Common Hamster, directly linked to the French RDP. It is based on the delimitation of three priority areas for conservation of minimum 600 ha each. The objective is to have at least 2% of this area covered by alfalfa (totalling ≥ 36 ha) and 20% by winter cereals (totalling ≥ 360 ha). Under the general measure 212, two new agri-environmental sub-measures directly targeted at hamster conservation have been included in the RDP for 2007-2013:

- Measure 09 «rotation à base de luzerne en faveur du Hamster commun ». This measure is based on the obligation of having at least three years of alfalfa on a field during a five year period; the other years, maize and sunflower may *not* be grown on the area. 10% of the alfalfa field shall be left unharvested, ploughing may not go deeper than 30 cm and must occur after 15 September. Rodenticides are prohibited, and cover (intercropping) must be provided until 1 December. Payment is 309 €/ha/year.
- Measure 10 « rotation à base de céréales d'hiver en faveur du Hamster commun ». This measure is based on the obligation of having at least three years of winter cereals on a field during a five year period; the other years maize and sunflower may *not* be grown on the area. If spring cereals are grown, they must be preceded by an intermediate crop, established before 1 September, and which must remain on the field until 1 December. Ploughing may not be deeper than 30 cm and must occur after 15 September. Rodenticides are prohibited. Payment is 169 €/ha/year.

To add value to the production of alfalfa, cattle farming will also be supported.

In the first year, uptake of these sub-measures was rather low, agreements were entered only on 20 ha for measure 09 and on 80 ha for measurer 10. In 2008, a total of 186 ha were covered by the schemes. Between 60 and 70 percent of the hamster population in Alsace was localized in fields not covered by AE measures in 2007. A first evaluation (Balland 2007) permitted an increase of the amount of compensation from 285 to 309 €/ha/year for alfalfa and from 146 to 169 €/ha/year for winter cereals (Préfecture du Bas-Rhin 2007). An increase of payments to 361 €/ha for alfalfa and 205 €/ha for winter cereals has been suggested for 2009. But according to ONCFS, compensation payments should be at least 800-1,000 €/ha/year for alfalfa (the maximum amount foreseen in the RD regulation is 600 €/ha, with exception of cases for which MS provides justification) and 500-700 €/ha/year for winter cereals in order to ensure success.

NETHERLANDS

In **the Netherlands**, there is no AE scheme for the hamster on a national scale, but in the Province of Limburg (which is the only province where the species occurs) a management package with four different schemes for hamster conservation is included in the subsidy regulation for agricultural nature management. The four schemes are all new and have the added advantage of being much closer to normal farming practice in this part of the Netherlands. Maximum payment is as high as 2300 €/ha/year for all schemes.

Hamster package 1, cereal-alfalfa light:

- Crop composition is 1/2 alfalfa, 1/3 cereals and 1/6 black garden radish;
- The management unit is at least 6 ha divided into at least 6 equally sized lots of at least 1 ha;
- Crop rotation is 6 years with crops changing over the 6 sub-units;
- Spring cereal crops on 1/6 of the area are harvested every year; winter cereals remain in the field;
- Alfalfa must be sown with normal maximum densities;
- Alfalfa must be harvested once (but rather twice) before 15 June;
- If an alfalfa strip is broader than 25 m, a 5-6 m wide strip of summer cereals must be sown in it;
- By changing crops the old growth is tolled and ploughed;
- Ploughing must not go deeper than 25 cm;
- Weed control and manure spreading are carried out as in normal cultivation.

Hamster package 2, cereal-alfalfa heavy:

- Crop composition is 1/3 alfalfa and 2/3 cereals and black garden radish; black garden radish is grown every two years on 1/3 of the area;
- The management unit is at least 3 ha divided into at least 3 equally sized lots of at least 1 ha;
- Crop rotation is 6 years with crops changing over the 3 sub-units;
- Crops must be sown with normal maximum densities;
- No cereal crop is harvested; every year the crop of spring or winter cereals remains in the field;
- Alfalfa must be sown with normal maximum densities;
- Alfalfa must be harvested once (but rather twice) before 15 June;
- If an alfalfa strip is broader than 25 m, a 5-6 m wide strip of summer cereals must be sown in it;
- By changing crops the old growth is tolled and ploughed;
- Ploughing must not go deeper than 25 cm;
- Weed control and manure spreading are carried out as in normal cultivation.

Hamster package 3, cereal-alfalfa-root crop light:

- Crop composition is 1/4 alfalfa, 1/2 cereals and 1/4 root crops; root crops must be potatoes or beets with a preference for beets;
- The management unit is at least 4 ha divided into at least 4 equally sized lots of at least 1 ha;
- Crop rotation is 8 years with crops changing over the 4 sub-units;
- Crops must be sown with normal maximum densities;
- Summer cereal and root crops are harvested every year; winter cereal crops shall remain in the field;
- Alfalfa must be harvested once (but rather twice) before 15 June;
- If an alfalfa strip is broader than 25 m, a 5-6 m wide strip of summer cereals must be sown in it;
- By changing crops the old growth is tolled and ploughed;

- Ploughing must not go deeper than 25 cm;
- Weed control and manure spreading are carried out as in normal cultivation.

Hamster package 4, cereal-alfalfa-root crop heavy:

- Crop composition consists in one year of 1/4 alfalfa, 1/2 cereals and 1/4 black garden radish and the other year of 1/4 alfalfa, 1/4 black garden radish, 1/4 root crops and 1/4 winter cereals; root crops must be potatoes or beets with a preference for beets;
- The management unit is at least 4 ha divided into at least 4 equally sized lots of at least 1 ha;
- Crop rotation is 8 years with crops changing over the 4 sub-units;
- Crops must be sown with normal maximum densities;
- Every 2nd year summer cereals or root crops are harvested; every year winter cereal crop remains in the field;
- Alfalfa must be harvested once (but rather twice) before 15 June;
- If an alfalfa strip is broader than 25 m, a 5-6 m wide strip of summer cereals must be sown in it;
- By changing crops the old growth is tolled and ploughed;
- Ploughing must not go deeper than 25 cm;
- Weed control and manure spreading are carried out as in normal cultivation.

FLANDERS, BELGIUM

In the region of **Flanders,** an AE scheme specifically targeted at the hamster exists. Farmers living in the designated core areas may be granted a subsidy for carrying out specific hamster friendly management measures if they sign a 5 year agreement on a voluntary basis. In 2008 farmers were very interested in signing these agreements. There is a choice between two kinds of measures: creating buffer strips with alfalfa (600 €/ha/year) or creating unharvested buffer strips with cereals (415 €/ha/year).

A number of practical measures are common to both options:

- The land must be an arable field (not a grassland);
- In at least 3 of the 5 years of agreement, a cereal crop must be sown;
- Maize or grass may not be grown on the field;
- No pesticides may be used except for local thistle control;
- If there are too many rodents or invasive plants, pesticides may be used as an exception if agreed upon by the Agency for Nature and Forest;
- Ploughing may not go deeper than 30 cm;
- During the whole agreement, a buffer strip with vegetation as described below must be maintained; a strip may only be removed if another one is available.

Specific measures for alfalfa strips:

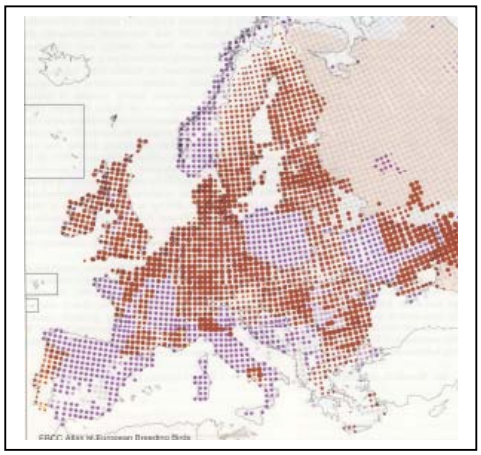
- The alfalfa strips must cover at least 20 % of the field surface and must be at least 12 m wide;
- The strip must be sown with alfalfa, red clover or a mixture of alfalfa and indigenous weeds;
- The strip may be mown up to 3 times a year but this must be organized in phases, implying that only half of the strip may be mown at a time;
- The strip may be fertilised with manure before sowing;
- 5% of the cereal crop shall be left unharvested; this part should be tilled between 20 October - 15 November;
- Directly after harvest, a crop usable for green manure or ground cover shall be sown.

Specific measures for unharvested cereal strips:

- The buffer strips must cover at least 25 % of the field surface and must be at least 12 m wide;
- The buffer strip may be sown with any cereal crop except maize;
- The buffer strip shall be left unharvested;
- After 1 November the cereal crop may be tolled.

Skylark *Alauda arvensis*

Birds Directive – Annex II



Alauda arvensis has a wide distribution across middle latitudes from Ireland to the Pacific.*

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present				°										
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present					°									

° Non-breeding visitor

SPECIES INFORMATION

ECOLOGY

- The skylark is somewhat larger than a sparrow but smaller than a starling; It has a streaky brown plumage and a small crest on its head which is raised when existed or alarmed;
- It is renowned for its dramatic display flights and its sustained melodious song;
- It is the most widespread lark in Europe and is a characteristic feature of agricultural landscapes;
- Skylarks from northern and eastern Europe are migratory whereas those in the west and south are mainly resident. Migrants winter mainly in SW Europe;
- Birds arrive at their breeding grounds from mid-February to early April, autumn passage occurs September-November;
- Skylarks breed from April to July and nest on the ground. They usually produce 2-3 (occasionally more) clutches of 3-5 eggs per year;
- Incubation time is c. 11 days; the young usually leave the nest at 8-10 days of age, fledge at 18-20 days and become independent after c. 25 days;
- First breeding is at the age of one year but only 20-35 % of the young leaving the nest survive to breeding age;
- Each female must make 2-3 breeding attempts per year in order to maintain a stable population;
- Skylarks feed on the ground, usually on arable fields, set-aside or grassland, autumn and winter often on stubble fields;
- Main food items are insects and other invertebrates in summer, seeds and green plant parts in winter.

* *Drawing courtesy of RSPB: http://www.birdlife.org/datazone/species/index.html*

HABITAT REQUIREMENTS

- The original habitat of the skylark is the steppe grassland but the vast majority now occur in agricultural land, especially arable fields; Within farmland cereals, legumes, root crops, young leys and set-aside are preferred;
- Other natural or semi-natural habitats inhabited by skylarks are salt marshes, sand-dunes, lowland and alpine meadows (up to at least 2000 m above sea level);
- Skylarks avoid tall or dense crops: the preferred vegetation height is 10-60 cm for nesting and < 25 cm for feeding and the preferred ground cover is 35-60%;
- Skylarks also avoid areas close to woods, hedgerows and other vertical structures;
- The highest population densities and the highest productivity occur where crop diversity provides a mosaic of vegetation heights suitable for nesting throughout the breeding season;
- Densities can be up to three times higher in organically farmed areas than in conventional areas;
- Outside the breeding season, skylarks are found in coastal marshes, pasture, fallow, stubble fields and fields with autumn-sown cereals or oil-seed rape.

THREATS

For centuries skylarks benefited widely from an increase in arable farmland. However, since 1970, skylark populations have suffered large declines (up to 49% drop) over most of northern and western Europe. The threats affecting the species in western Europe are well understood and it is supposed that the same threats are now operating further east, particularly following accession to the EU.

The major threats are linked with agricultural intensification and include:

- Reduced crop diversity due to the loss of mixed holdings, amalgamation of fields and farm holdings, the trend towards monocultures etc. The uniform crop structure shortens the period when optimum breeding conditions are available and thus limits the number of successful breeding attempts;
- Abandonment of arable farming: may lead to significant loss of skylark habitat if the fields are afforested or are invaded by scrub;
- Autumn-sowing instead of spring sowing impacts the skylark in two ways: firstly, autumn-sown crop monocultures are unsuitable breeding habitat as they are denser and taller throughout the season. This means that generally there is only one single successful nesting attempt. Secondly, autumn-sowing results in a loss of winter stubbles which are very important feeding habitats in autumn, winter and early spring;
- Intensification of grassland management: reseeding and increased application of fertilizers lead to a homogeneous, dense, fast-growing sward that quickly becomes unsuitable as a nesting habitat. The switch from hay to silage has the same effect;
- Increased use of pesticides reduces the amounts of weeds and invertebrates serving as food for skylarks;
- Increased amounts of fertilizer accelerate crop development and make the areas unsuitable for skylark nesting and foraging earlier in the season;
- Harvesting techniques: in taller crops, the birds have a tendency to nest near tractor tracks. This not only makes the nests vulnerable to crushing but also increases their exposure to predators. In grasslands the switch from hay to silage has resulted in many nests being destroyed by cutting machinery since the period between cuts is often too short for successful nesting;
- Increased predation: because skylarks nest on the ground, they are heavily predated on by crows, foxes, mustelids etc… These generalist predators have increased in numbers across large parts of Europe in recent decades;
- Exploitation: About 5 million skylarks, or c. 5 percent of the wintering population, are annually harvested within the EU. It is doubtful whether such a level of exploitation is sustainable, given the unfavourable conservation status of the species.

FARMING PRACTICES FAVOURABLE TO SKYLARKS

Skylark populations are declining or depleted in most Member States and intensification of agriculture is thought to be the main cause. Although this intensification is less progressed in Eastern Europe than further west, implementation of skylark friendly farming practices is important across the EU-27, in order to maintain healthy populations in the east and restore depleted populations in the west. The following practices will help:

- Promote organic farming: Organic farming tackles several of the issues associated with current conventional practices such as low crop diversity, low sward heterogeneity and high levels of pesticide and inorganic fertilizer use. Although some elements of organic farming, especially mechanical weeding, may affect skylarks negatively, the overall effect of a conversion is positive;
- Maintain or increase crop diversity: The presence of different crops, with different structure and phenology, ensures that suitable breeding conditions for skylarks exist over a long period;
- Maintain or increase spring-sowing of cereals: Contrary to autumn-sown cereals, spring-sown crops offer a vegetation structure which is suitable for skylarks during most of the summer and thus allow more than one breeding attempt;
- Leave cereal stubbles over winter: Stubble fields are very important feeding habitats in autumn, winter and early spring, especially when left untreated (no harrowing, no pesticides) until spring;
- Promote extensive grassland management:Sslow-growing grasslands with a heterogeneous sward may hold high densities of skylark, but reseeding, increased fertilization, frequent mowing or increased stocking rates severely impairs their value as a breeding habitat;
- Leave areas as set-aside: in large blocks (e.g. 16-24 m²) away from field boundaries and tractor tracks, this creates suitable foraging areas for the skylark (e.g. 'beetle banks'). Such areas should not be close to hedgerows or other vertical structures. Management should keep them with an open, low vegetation structure but they should be left untreated (no harrowing, no cutting etc) from March-April to August. In the UK it was found that just two such skylark plots per ha can have significant benefits for skylarks;
- Leave unsown patches in cereals: Even small, unsown patches (eg 30 m^2 each) in cereal fields may increase nest density and breeding success by offering a vegetation structure that is suitable for skylarks and giving the birds easy access to the surrounding crop. This is particularly important in autumn-sown cereals;
- Reduce pesticide use: to provide more weeds, weed seeds and insects as food for skylarks;
- Reduce irrigation to the minimum amount necessary: to avoid that nests are flooded and nestlings are soaked and die from cold;
- Control exploitation: Hunting of skylarks occurs in several countries from August to February: France, Italy, Malta, Greece and Cyprus (and probably also in northern Spain). It is carried out partly for food, partly as a cultural and leisure activity. The level of hunting however needs to be regulated in accordance with the provisions of the Birds Directive to ensure that it does not affect the conservation status of the species.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the skylark has particular habitat requirements that are unique to its ecology and lifecycle. However, several of the measures mentioned above would also benefit other farmland species protected under the Birds Directive e.g.:

Red Kite, *Milvus milvus;*
Kestrel, *Falco tinnunculus;*
Lapwing, *Vanellus vanellus;*
Ortolan Bunting, *Emberiza hortulana;*
Corn Bunting, *Miliaria calandra.*

In addition, these management practices would benefit several huntable species, including declining or depleted species such as:

Red-legged Partridge, *Alectoris rufa;*
Grey Partridge, *Perdix perdix;*
Quail, *Coturnix coturnix;*
Brown Hare, *Lepus europaeus.*

OBLIGATIONS ARISING FROM THE BIRDS DIRECTIVE

The skylark is protected under the EU Birds Directive 79/409/EEC (but is not listed in Annex I so Natura 2000 sites do not have to be designated for this species). Member States must take the following measures to ensure its conservation.

General requirements

Member States are required to take the requisite measures to maintain the population of the corncrake at a level which corresponds in particular to its ecological, scientific and cultural requirements, or to adapt the population of the species to that level (cf Article 2).

To achieve this, Member States are required to preserve, maintain or re-establish a sufficient diversity and area of habitats for the skylark which should include primarily the following (cf Article 3):
- creation of protected areas;
- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected area;
- re-establishment of destroyed habitats;
- creation of habitats.

Protecting the species

Member States should take the requisite measures to establish a general system of protection for the skylark throughout its natural range within Europe, and in particular to prohibit the following (cf Art 5):
- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping the birds, the hunting and capture of which is prohibited

Member States must also make provisions to regulate the sale, transport for sale, keeping for sale and the offering for sale of live or dead birds and of any readily recognizable parts or derivatives of these birds (cf Art 6).

Control of exploitation (Articles 7& 8)

The skylark is listed under Annex II/2 of the Birds Directive, which means that the species may be hunted under national legislation in those Member States (Cyprus, France, Greece, Italy, Malta and Romania) which have specifically indicated that hunting of skylarks can be allowed. These Member States must ensure that the practice of hunting complies with the principle of wise use and that hunting is compatible with the measures taken according to Article 2 (cf above). They shall see in particular that skylarks are not hunted during their period of reproduction or during their return migration towards the breeding grounds in late winter and spring. In the case of skylark the hunting season is restricted to 15 August to 15 February.

In respect of the hunting of the species, Member States shall prohibit the use of all means, arrangements or methods used for the large-scale or non-selective capture or killing of birds or capable of causing the local disappearance of skylarks or other bird species. In particular, the following methods shall be prohibited (Article 8):
- snares, limes, hooks, nets or traps;

- live birds which are blind or mutilated used as decoys;
- tape recorders;
- poisoned or anaesthetic bait;
- artificial light sources, mirrors, devices for illuminating targets etc;
- electrocuting devices or explosives;
- semi-automatic or automatic weapons.

SKYLARK CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

Obligations arising under the Birds Directive can be integrated into the CAP measures in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

In the case of the **Birds Directive** one of the 19 SMRs concerns the requirements resulting from the following articles that must be respected by farmers:

→ Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;

→ Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;

→ Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

The exact requirements of the above mentioned SMRs vary between Member States and depend on the way the requirements of the Birds and Habitats Directives are translated into their laws and administrative measures (e.g. management plans for Natura 2000 sites) applicable to farmers, and consequently cross compliance.

In addition to meeting the SMRs, farmers must also keep land in good agricultural and environmental conditions (GAEC) which sets a minimum level of maintenance through, for instance, compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards, for example, for[52]:

– Minimum livestock stocking rates or/and appropriate regimes;
– Establishment and/or retention of habitats.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit skylarks:

- **Less Favoured Area payments** (Article 37): linked to existing farming practices where they support upkeep of traditional low-input farming systems;

[52] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

- **Agri-environment payments** (Article 39): in order to compensate for costs incurred and income foregone resulting from farming practices that are important for skylarks. For instance, voluntary measures such as conversion to organic farming, sowing cereals in spring instead of in autumn, leaving untreated stubble over winter, leaving unsown patches in cereal fields, reducing pesticide and fertilizer use, limiting irrigation, not intensifying grassland management...
- **Reimbursement of non-productive investments** (Article 41): can cover a range of investments including on-farm investments linked AE schemes, or which enhance the public amenity value of a Natura 2000 area;
- **Conservation of rural heritage** (Article 57)**:** for instance to cover the cost of drawing up management or species action plans for skylark undertaking habitat restoration measures, launching awareness campaigns on skylark conservation amongst farmers.

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make agri-environment schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as skylarks;
- **Farm Advisory Services (FAS)** (Articles 24 and 25): to advise farmers on how to apply cross compliance rules, e.g. those based on the Habitats and Birds Directives that are beneficial, inter alia, for skylarks:
- **LEADER** (Article 61): integration of skylark conservation into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF SKYLARK FRIENDLY MEASURES UNDER RDP

The following provide a few examples of how different countries have included skylark friendly measures in their Rural Development Programmes. Besides such measures that are directly targeted at skylarks, most Member States have introduced a number of more general measures, first of all related to the promotion of organic farming, integrated production or other low-input farming practices, which in addition to other purposes also benefit skylarks.

Many of the agri-environment measures deal with the management of field borders or strips along field borders. It should be noticed that such measures are generally of limited value to skylarks which often tend to avoid the field edge, especially if this is lined by hedges or trees.

FLANDERS (BELGIUM)

The following measures are included in the RDP for Flanders 2007-2013:

Skylark patches: The aim is to create small patches in a cereal field which are not sown and provide favourable feeding and breeding places for skylarks for a long period in spring and summer. Skylarks are thus able to have multiple broods a year which is important to restore the populations.
Payment is 15 € per patch and the following conditions apply:

- The parcel is a field with a cereal crop (not maize) and has a surface of at least 0,5 ha;
- Scattered over the parcel a number of small patches (16m² as a minimum) are not sown;
- The distance between the patches and high elements in the landscape (buildings, lines of trees etc) or roads with busy traffic is at least 100 m; the distance to a wood (of more than 5 ha) is at least 250 m and the distance to the border of the field is at least 20 m;
- Riding tracks may not touch the patches;
- The patches can rotate within the fields but their number must remain constant;
- Two patches per ha should be created with a minimum of 2 per parcel.

Winter stubble: The aim is to retain a stubble which is not treated with pesticides and thus provide winter food for different farmland birds. Payment is 50 €/ha/year and the following conditions apply:

- The parcel is a field with a cereal crop (not maize), peas, horse beans or flax;
- No pesticides may be used before harvest in autumn and until 15 March;
- Local control of thistles is allowed;
- The stubble must be maintained until 15 March of the following year;
- The stubble may rotate over the farmland on a yearly basis;
- Maximum is 5 ha per farmer.

ENGLAND (UK)

The following skylark friendly measures under the Entry Level Stewardship Scheme are open to all farmers and land managers in England:

Skylark plots: The aim of this option is to provide suitable habitat for skylarks in arable fields sown with winter cereals. Payment is 7 € per plot and the following conditions and guidelines apply:

- The field shall be sown with a winter cereal, be more than 5 ha in area and of an open aspect;
- Fields bounded by tree lines or adjacent to woods shall be avoided unless the field is greater than 10 ha;
- To create the plot, the drill shall be turned off during sowing in order to leave an unsown area. This area shall be no less than 3 m in length or width and no more than 12 m in length or width; the precise size and shape may depend on what is practical with the drill;
- The plots shall be well away from field boundaries and shall not be connected to the tramlines;
- The plots shall be spaced across the field with no more than two plots per ha;
- After drilling the plots may be managed in the same way as the remainder of the field (i.e. they can be over-sprayed, receive fertilizer applications etc) but mechanical weeding of the plots between 1 April and harvest is not allowed;
- The option is rotational, i.e. the plots may move around the farm with the normal arable rotation but the total number of plots must be maintained.

Over-wintered stubbles: The aim of this option is to provide a beneficial habitat for brown hare and an important winter food source for seed-eating birds, from spilt grain and seeds of broad-leaved weeds. It concerns the management of land following the harvesting of a combinable crop such as cereals (except maize), oilseed rape, linseed or field beans until 14 February the following year. Payment is 178 €/ha/year (222 €/ha/year on organic farms) and the following conditions and guidelines apply:

- Straw shall be baled or chopped and spread after harvest;
- A light surface cultivation to encourage weed germination and loosen any surface compaction or capping is allowed before the end of September (or within the first month following harvest, if later);
- Tramlines may be subsoiled following harvest to remove compaction; this is recommended when there is a risk of soil run-off;
- Other forms of cultivation or soil management are not allowed;
- Application of pre-harvest dessicants or post-harvest herbicides is not allowed;
- Application of pesticides, fertilizers, manure or lime to the stubble is not allowed;
- Topping or grazing is not allowed;
- The stubble must be followed by a spring-sown crop;
- The option is rotational, i.e. it can move around the farm within the normal arable rotation but the total surface area must be maintained.

Cereals for whole crop silage followed by over-wintered stubbles: The benefits of this option are the provision of a rich seed source in the winter stubble and from the unripe grain. However, harvesting as whole crop silage may shorten the period where the area is suitable for breeding skylarks. Payment is 340 €/ha/year (370 €/ha/year on organic farms) and the following conditions and guidelines apply:

- A cereal crop (except maize) must be sown in autumn or spring;

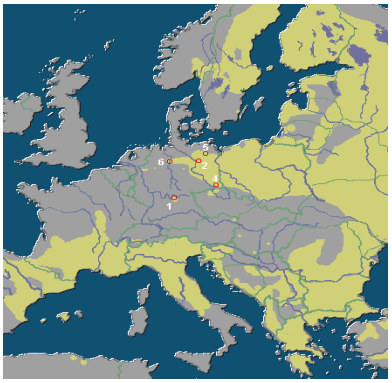
- The crop must be harvested as whole crop silage;
- Application of insecticides is not allowed between 15 March and harvest;
- Application of herbicides is restricted (only a very limited number of herbicides may be used and only within specific periods, depending on the kind of weeds to be controlled);
- There are no restrictions on the use of fungicides or growth regulators;
- Stubble must be retained until at least 15 February in the following year and must be followed by a spring-sown crop;
- Maximum area is 5 ha per applicant;
- The option is rotational, i.e. it can move around the farm within the normal arable rotation but the total surface area must be maintained.

In addition to these measures, several options of potential benefit to skylarks exist under the Higher Level Stewardship Scheme. Support under this scheme is discretional and is normally only suitable for land that is of significant environmental interest. Within the general objective of wildlife conservation, priorities and targets are defined on a regional basis. Although skylark will usually not be a main target species, some of the options within the scheme will, as a side-effect, benefit skylarks, e.g.:

- Fallow plots (rotational or non-rotational) for ground-nesting birds;
- Reduced herbicide, cereal crop management preceding over-wintered stubble and a spring crop;
- Low input spring cereal to retain or re-create an arable mosaic.

Ortolan bunting *Emberiza hortulana*

Birds Directive – Annex I



Emberiza hortulana breeds in Europe and Central Asia, as far west as NW Mongolia[53]

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

SPECIES INFORMATION

ECOLOGY

- Ortolan buntings are small passerines that breed in Europe and Central Asia and spend the winter in Africa, south of the Sahara;
- Birds arrive at their breeding grounds in April-May and leave Europe again in August-October;
- The choice of a breeding place is based on habitat quality as well as on the presence of other individuals. Territories are not strictly defended and the males often have songposts 20-50 m apart;
- The overall breeding density is difficult to assess because of the tendency of breeding pairs to cluster. In prime breeding habitats densities can be as high as 15 singing males per 15 ha but are more commonly around 2-20 breeding pairs per km²;
- The nest is mostly placed on the ground, sometimes also low in bushes or small trees;
- Egg-laying occurs during May-June. The clutch size is 3 to 5. Pairs raise only one clutch per year;
- Incubation time is 11-12 days. The young leave the nest after 12-13 days and become independent of the parents c. 4 days later;
- Ortolan buntings eat mostly invertebrates, but also seeds, especially outside the breeding season.

HABITAT REQUIREMENTS

- Within the European breeding range, ortolan buntings occur in a wide variety of habitats. They prefer areas with a continental climate, many hours of sunshine and low rainfall;
- Key factors in determining suitable habitat are the presence of trees, which are used as song-posts and sometimes as foraging sites, and open areas suitable for feeding;

[53] *Map: The complete birds of the Western Palearctic CD-ROM (1998) Photo courtesy of Petra Bernady*

- In Central and Eastern Europe, ortolan buntings are associated mainly with cultivated land. They prefer low-intensity, mixed farmland on light soils with sparsely vegetated spots (for feeding) and bushes, trees and artificial perches (as song-posts);
- In Southern Europe, the species breeds in uplands and mountains up to at least 2,000 m, where it typically occurs in rugged, gully-strewn countryside;
- In forested areas of Fennoscandia, the small remaining populations occupy forest margins, clearings and clear fells.

THREATS

Ortolan bunting populations are declining across most, if not all, of its European range. The causes of the decline are not well understood. Identification of the principal threats is complicated by the variability in habitat choice across Europe.

The major threats are thought to include:

- Loss of habitat heterogeneity in farmland: through replacement of small-scale, mixed farming by large-scale, intensive agriculture. Negative features include the loss of tree- or bush-lined ditches, clearance of scrub patches, amalgamation of fields, and reduction of crop diversity;
- Intensification of farming practices: Increased use of fertilizer and high seed densities make crops too dense for the birds to walk through while feeding, and herbicide and insecticide use reduces the density and diversity of food items;
- Abandonment of cultivation: Although an evolution from open to semi-open landscapes benefits the species, further succession towards forest and scrub has a negative impact. Abandonment of extensively cropped or grazed land is therefore detrimental, due to the loss of habitat mosaic;
- Loss of habitat through urbanization (mainly Western and Central Europe) or afforestation (mainly upland areas in Southern Europe);
- Pesticides: The use of pesticides greatly reduces the number of insects available to the birds. Residues also accumulate in the birds and these may reach fatal levels when the birds fat reserves are depleted on migration;
- Exploitation: for more than a century, ortolan buntings have been the subject of traditional autumn hunting with nets in South-Western France. In the mid-1990s, the annual bag was c. 50,000 birds while more recently, an estimated 5,000 to 30,000 birds are killed annually.

FARMING PRACTICES FAVOURABLE TO ORTOLAN BUNTING

Ortolan buntings occur in a variety of habitats, and the causes of the population decline are not well understood. Therefore, pointing out specific farming practices that are particularly favourable to the species is not an easy task. The following list of helpful farming practices are rather generalized as the specific management measures to be implemented within a certain area will depend on the type of habitat occupied by the local ortolan bunting population.

- Maintain or develop a habitat mosaic: No matter whether the general habitat is farmland, upland or forest, a common feature of sites occupied by ortolan buntings seems to be the presence of a structurally diverse mosaic of trees and open areas with patches of bare or sparsely vegetated ground. Generally, all farming and forestry practices that maintain such a habitat mosaic structure are therefore favourable to the species;
- Maintain non-intensive arable and mixed farming systems: Ortolan buntings favour small-scale, non-intensive farming systems with small fields, high crop diversity, low levels of pesticide use, and tree-lined tracks or field borders. Such farming systems seem to provide the right mixture of feeding areas, song-posts and nest cover;

- Maintain or develop unfarmed features in agricultural areas: Unfarmed features such as hedges, small groves, isolated trees and fallow areas should be preserved. The presence of trees near junctions of field borders is of particular importance, because here different crops, providing a variety of feeding opportunities, may meet and optimum breeding places are often found;
- Prevent land abandonment: Abandonment of extensively cropped or grazed land, followed by a succession of scrub, is a major threat to ortolan bunting habitat in Southern Europe. Non-intensive farming practices in such areas should therefore be maintained or re-established.
- Prevent conversion to intensive cropping systems or afforestation: Intensive crops are no longer suitable for ortolan buntings as they become too dense for the birds to walk through while feeding. It also leads to the loss of tree- or bush-lined ditches, clearance of scrub patches, amalgamation of fields and reduction of crop diversity;
- Restrict or prevent use of fertilisers, pesticides etc: as they can reduce the density and diversity of food items and cause toxicity in the birds;
- Prevent scrub invasion: Encroachment of scrub on open upland areas, which are part of a mosaic landscape with trees should be prevented by grazing or cutting of the vegetation;
- Prohibit the capture and killing: of ortolan bunting unless for specific well justified reasons in accordance with Article 9 of the Birds Directive which will not compromise its conservation status.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the ortolan bunting has particular habitat requirements that are unique to its lifecycle and to its long term survival. However, as the bunting is essentially a species of traditional agro-pastoral systems and orchards, several of the measures mentioned above would also benefit other species protected under the Birds Directive that are typical of these habitats.
Red Kite, *Milvus milvus;*
Hoopoe, *Upupa epops;*
Woodlark, *Lullula arborea;*
Red-backed Shrike, *Lanius collurio.*

In addition, these management practices would benefit several huntable species, including declining or depleted species such as:
Red-legged Partridge, *Alectoris rufa;*
Grey Partridge, *Perdix perdix;*
Quail, *Coturnix coturnix;*
Turtle Dove, *Streptopelia turtur.*

OBLIGATIONS ARISING FROM THE BIRDS DIRECTIVE

The ortolan bunting is protected under the EU Birds Directive 79/409/EEC, it is listed in Annex I of the Directive. As a result, Member States must take the following measures to ensure its conservation.

General requirements

Member States are required to take the requisite measures to maintain the population of the ortolan bunting at a level which corresponds in particular to its ecological, scientific and cultural requirements, or to adapt the population of the species to that level (cf Article 2).

To achieve this, Member States are required to preserve, maintain or re-establish a sufficient diversity and area of habitats for the ortolan bunting which should include primarily the following (cf Article 3):
- creation of protected areas;

- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected area;
- re-establishment of destroyed habitats;
- creation of habitats.

Protecting the species

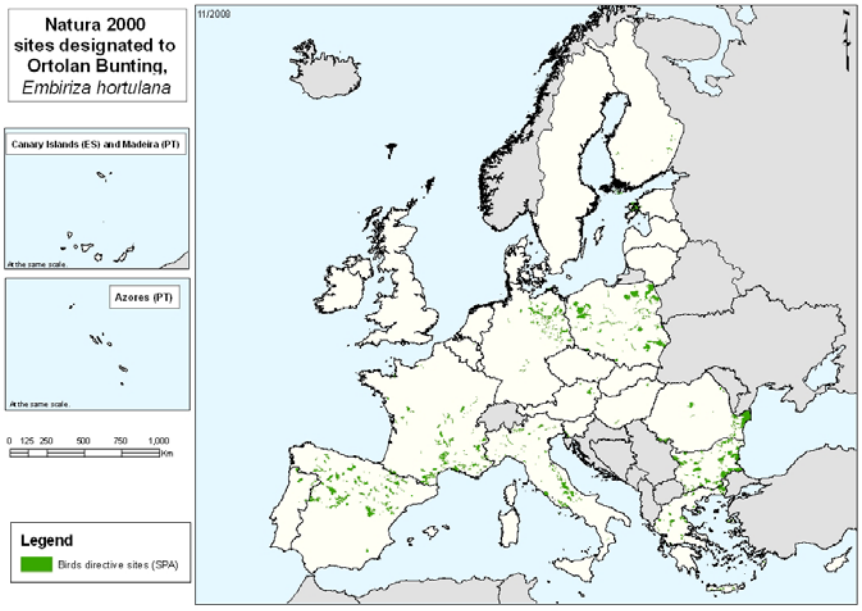
Member States should take the requisite measures to establish a general system of protection for the ortolan bunting throughout its natural range within Europe, and in particular to prohibit the following (cf Art 5):

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping birds, the hunting and capture of which is prohibited;
- sale, transport for sale, keeping for sale and the offering for sale of live or dead birds and of any readily recognizable parts or derivatives of these birds (cf Article 6).

Member States may derogate from these provisions under a number of circumstances (eg in the interest of public health, or judicious use) where there is no other satisfactory solution and where the derogations do not affect the overall conservation status of the species (cf Article 9).

Protecting core habitats for the species under Natura 2000

The ortolan bunting is listed in Annex I of the Birds Directive in view of its vulnerable conservation state. This means that, in addition to the general provisions referred to above, Member States must also classify the most suitable territories in number and size as Special Protection Areas under Natura 2000 to ensure the survival and reproduction of the species across its entire area of distribution within the EU (cf Article 4). As of November 2008, 775 SPAs have been designated in the EU-27 where the ortolan bunting is indicated as present.



Managing Natura 2000 sites

Within these SPAs, Member States must take appropriate steps to avoid the deterioration of habitats of the ortolan bunting as well as its disturbance, in so far as such disturbance could be significant.

Measures must also be taken to manage, maintain or, if necessary, restore areas for the ortolan bunting both within SPAs and outside so that the objectives of the Directive are achieved (cf Art 3). The Birds Directive does not elaborate how this should be done as this is up to each Member State to decide but, in practice, management plans are very often developed for each SPA within Natura 2000.

Management plans are useful documents in that they:

- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;
- analyse the socio-economic and cultural context of the area and the interactions between different land uses and the species and habitats present;
- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases, if no viable alternatives exist, projects with significant negative impact on Natura 2000 sites can still go ahead if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive which apply to SPAs classified under the Birds Directive).

ORTOLAN BUNTING CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

The obligations arising under the Birds and Habitats Directives can be integrated into the CAP measures in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

In the case of the **Birds Directive** one of the 19 SMRs concerns the requirements resulting from the following articles that must be respected by farmers:

→ Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;

→ Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;

→ Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

In the case of SPAs another SMR based on the **Habitats Directive**, must be respected:

- Article 6: within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

The exact requirements of the above mentioned SMRs vary between Member States and depend on the way the requirements of the Birds and Habitats Directives are translated into their laws and administrative measures (e.g. management plans for Natura 2000 sites) applicable to farmers, and consequently cross compliance.

In addition to meeting the SMRs, farmers must also keep land in good agricultural and environmental conditions (GAEC) which sets a minimum level of maintenance through, for instance, compulsory standards for:
- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards, for example, for[54]:
- Minimum livestock stocking rates or/and appropriate regimes;
- Establishment and/or retention of habitats;
- Prohibition of the grubbing up of olive trees;
- Maintenance of olive groves and vines in good vegetative condition.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit ortolan bunting:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;
- **Natura 2000 payments:** (Article 38) in order to compensate for costs incurred and income foregone resulting from legal or administrative restrictions on farming within Natura 2000 areas such as not intensifying farmland management;
- **Agri-environmental schemes:** (Article 39) linked to voluntary measures such as practicing mixed farming that retains a structurally diverse mosaic of trees and open areas with patches of bare or sparsely vegetated ground, reducing or prohibiting the use of pesticides, removing scrub;
- **Reimbursement of non-productive investments**: (Article 41) can cover a range of investments from on-farm investments linked AE schemes or to measures identified in management plans such as converting to organic production methods, or which enhance the public amenity value of a Natura 2000 site;
- **Conservation of rural heritage** (Article 57)**:** for instance to cover the cost of drawing up management plans for sites hosting ortolan bunting, undertaking habitat restoration measures in areas currently or potentially suitable for ortolan bunting, launching awareness campaigns on ortolan bunting conservation requirements amongst farmers.

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as ortolan bunting;
- **Farm Advisory Services (FAS)** (Articles 24 and 25): to advise farmers on how to apply cross compliance rules e.g. those based on the Habitats and Birds Directives that are beneficial, inter alia, for ortolan bunting:
- **LEADER** (Article 61): integration of ortolan bunting conservation into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

[54] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

EXAMPLES OF ORTOLAN BUNTING FRIENDLY MEASURES UNDER RDP

No schemes were found in the Rural Development Regulations for 2000-2006 or 2007-2013 that directly targeted the conservation of ortolan bunting but a review of a selection of RDPs for 2007-13 reveals several agri-environment measures that could be of potential indirect benefit for the species.

These can be summarised as:

- Measures to support low intensity mixed farming systems;
- Measures to maintain and create landscape features, such as hedges, tree lines and field or forest margins (over and beyond GAEC levels);
- Organic farming.

However, it should be emphasised that these measures are only *potentially* beneficial. There are several critical questions which influence the extent to which this potential is realised on the ground. Further details are provided in Wildlife & Sustainable Farming Initiative: http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

GERMANY

In Lower Saxony, a pilot study was launched in 2003 to develop conservation measures for threatened farmland species, including the ortolan bunting, and to find ways of incorporating these measures into the new agri-environment schemes for 2007 on. 18 farmers involving collectively 100ha took part in the pilot project. They committed themselves to reducing the sowing density of their crops and abstaining from using sprinklers, herbicides or fertilisers on their fields. The compensations paid ranged from 510€/ha for cereals, 1600€/ha for potatoes ad 1200€/ha for sugar beet.

Monitoring results showed that even on this small scale the breeding success of ortolan buntings in most of the trial areas increased significantly compared to the control fields. Spring barley and pea crops were by far the most preferred habitats with frequent use of summer wheat and potato crops for foraging.

Based on this pilot study a new agri-environment measure was introduced into Lower Saxony's RDP for bird conservation on arable land. This requires that farmers:

- Maintain field verges of 6-24 m in width;
- Avoid use of pesticides and fertilisers throughout the year
- Avoid sprinker water systems in trial areas;
- Promote mixed cropping systems with cereal-grain-pulse mixes;

The present subsidy for this is between 320-615€/ha.

GREECE

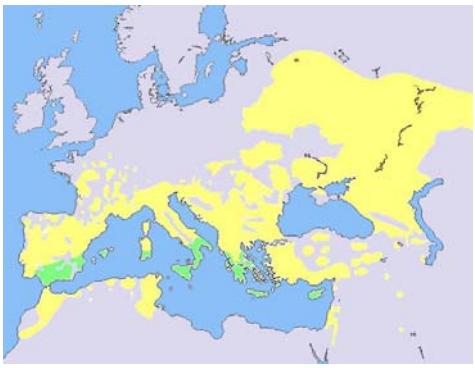
In Greece, wildlife conservation in agricultural landscapes is expected from Axis 2 of the National Rural Development Plan (2007-2013) of Greece (Greek Ministry of Rural Development 2007). Following actions of Axis 2 could contribute to the conservation of the ortolan bunting, if implemented in the right areas.

- Actions for biodiversity protection: Protection of wildlife and implementation of regulatory prototypes on wildlife (especially avifauna) and habitats aiming at biodiversity conservation and environmental balance;
- Action for the protection and conservation of rural landscape:
  - Protection of traditional rural landscape that was shaped from past agricultural practices (i.e. olive groves in Amfissa, Corfu, Mytilene, orchards of Santorini, etc.);
  - Landscape conservation shaped by old agricultural practices (i.e. terraces, hedges) contributing to protection from soil erosion and biodiversity conservation;

These measures could be used to the benefit of the ortolan bunting, but up to now there is no information on whether this has been applied in areas (Natura 2000 sites) used by the species.

Scops owl *Otus scops*

Birds Directive (not listed in Annexes)



Otus scops has a large range that extends from Europe and North Africa to central Russia and Asia as far as Japan[55].

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

SPECIES INFORMATION

ECOLOGY

- At 20 cm, scops owl is one of the smallest owls in Europe;
- It is largely a nocturnal species and generally solitary, although loose colonies of 2-7 individuals have also been observed;
- Scops owl is generally monogamous, it nests in cavities in old trees and sometimes in abandoned buildings;
- The female lays 2-6 eggs and raises the chicks alone. The young leave the nest after 21-33 days;
- Its diet consists almost entirely of insects, especially crickets, grasshoppers, moths and beetles;
- Due to the small size of the prey and their low energetic content, an important quantity of prey is necessary, especially whilst the young birds are fledging;
- It is mostly a migratory species, northern populations tend of overwinter in southern Europe, whilst other populations overwinter in sub-Saharan Africa.

HABITAT REQUIREMENTS

- Scops owl is a typical species of traditional extensive agri-pastoral systems which contains a mosaic of habitats consisting of large old trees, semi-natural grassland and small patches of scrub;
- It inhabits all types of open woodland, cultivated land with trees, orchards and other fruit plantations, olive groves, unimproved meadows, riverine forests and ramblas (temporary rivers) as well as town parks, gardens and trees along the roadside;
- It requires low vegetation (e.g. unimproved meadows or pasture) for foraging and old trees with hollows for nesting;
- Grassy road side verges and grassy strips are also attractive as foraging sites for owls as they are often very rich in grasshoppers and other insects;

[55] *Map: Perrins, C.M & Ogilvie, M.A. Drawing courtesy of http://en.wikipedia.org/wiki/Eurasian_Scops-owl*

- Breeding territories may be clustered which could be either the result of a clumped distribution of suitable areas for breeding or foraging, or eventually because other individuals are present which could be interpreted as an indicator of suitable habitat.

THREATS

The causes of decline in scops owl populations are more or less the same across the species range in Europe (only the most critical threats are listed here):

- Loss of suitable habitats through land abandonment leading to the spread of rank vegetation and invading scrub which renders the habitat unsuitable for scops owls;
- Intensification of agricultural or forestry practices: Especially the intensification of orchards, olive groves, vineyards and other fruit plantations; intensive orchards are of little or no conservation value for scops owl as they lack old trees, have intensively managed understorey vegetation and are heavily fertilised or sprayed with pesticides which kills off the insects upon which the owl feeds;
- Removal of semi-natural elements in traditional landscapes: Hedges, walls, grassy patches, individual tree lines or clusters are sometimes removed to make room for crop expansion;
- Pesticides: The use of pesticides is a major cause of scops owl decline as it greatly reduces the number of insects available to the birds. Residues also accumulate in the birds and these may reach fatal levels when the birds fat reserves are depleted on migration;
- Traffic; Collision with vehicles is a problem as the birds have a low-flight and tend to frequent road side verges for foraging.

FARMING PRACTICES FAVOURABLE TO SCOPS OWL

The scops owl still has a relatively healthy global population although in Europe it is considered depleted due to its large historical decline between 1970 and 1990. The species is closely associated with traditional low intensity agro-pastoral systems and its decline is directly linked to the loss of such activities. The poor economic viability of traditional orchards/ agro-forestry systems compared with intensive plantations, the difficulties associated with mechanizing work in traditional orchards, the market demand for more homogenous fruit production are all contributing factors to their decline.

Measures beneficial to scops owl include:

- Maintaining traditional agro-pastoral mosaic landscapes: that provide a suitable mix of old trees for nesting, open semi-natural meadows or pastureland for foraging and small pockets of scrub for day roosting;
- Preserving traditional orchards: and avoiding grubbing out or replacing these with intensive fruit production plantations which are of little or no interest for owls;
- Retaining semi-natural elements in traditional landscapes: like hedges, walls, grassy patches, strips and verges as well as individual tree lines or clusters;
- Maintaining appropriate grazing or mowing levels: to keep the vegetation low but still rich in insects and grasshoppers in particular;
- Restricting or prohibiting the use of pesticides and fertilisers: to ensure that insect populations remain healthy and to avoid that toxic substances accumulate within the owls;
- Encourage organic farming.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the scops owl has particular habitat requirements that are unique to its lifecycle and to its long term survival. However, as the owl is essentially a species of traditional agro-pastoral systems and orchards, several of the measures mentioned above would also benefit other species protected under the Birds Directives that are typical of these habitats.

Roller, *Coracias garrulous*
Woodlark, *Lullula arborea*
Masked shrike, *Lanius nubicus*
Little Owl, *Athena noctua*
Woodchat Shrike, *Lanius senator*
Syrian woodpecker, *Dendrocopos syriacus*
Olive-tree warbler, *Hippolais olivetorum*
Ortolan bunting, *Emberiza hortulana*
Collared Flycatcher, *Ficedula albicollis*.
Grey-Headed Woodpecker, *Picus canus*

A variety of bat species forage over traditional orchards, as the greater horseshoe bats (*Rhinolophidae*) and species inside the groups Pipistrelles (*Vespertilionidae*) and noctules (*Nyctalus*).

OBLIGATIONS ARISING FROM THE BIRDS DIRECTIVE

The scops owl is protected under the EU Birds Directive 79/409/EEC. It is not listed in Annex I (therefore no Natura 2000 sites are required to be designated for its conservation) but the provisions of Articles 2 and 3 still apply as regards habitat conservation. Member States must take the following measures to ensure its conservation.

General requirements

Member States are required to take the requisite measures to maintain the population of the scops owl at a level which corresponds in particular to its ecological, scientific and cultural requirements, or to adapt the population of the species to that level (cf Article 2).

To achieve this, Member States are required to preserve, maintain or re-establish a sufficient diversity and area of habitats for the scops owl which should include primarily the following (cf Article 3):
- creation of protected areas;
- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected area;
- re-establishment of destroyed habitats;
- creation of habitats.

Protecting the species

Member States should take the requisite measures to establish a general system of protection for the scops owl throughout its natural range within Europe, and in particular to prohibit the following (cf Art 5):
- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping birds, the hunting and capture of which is prohibited;
- sale, transport for sale, keeping for sale and the offering for sale of live or dead birds and of any readily recognizable parts or derivatives of these birds (cf Article 6).

Member States may derogate from these provisions under a number of circumstances (eg in the interest of public health, or judicious use) where there is no other satisfactory solution and where the derogations do not affect the overall conservation status of the species (cf Article 9).

SCOPS OWL CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

Obligations arising under the Birds Directive can be integrated into the CAP measures in the following manner:

Cross compliance

Cross compliance is a horizontal CAP tool and applies to all direct payments (Pillar I), Pillar II payments (Less Favoured Area payments, Agri-Environment, Natura 2000 compensatory payments, and certain wine payments). The cross compliance requirements consist of 19 Statutory Management Requirements (SMR), and the requirements set to keep land in good agricultural and environmental conditions (GAEC).

In the case of the **Birds Directive** one of the 19 SMRs concerns the requirements resulting from the following articles that must be respected by farmers:

→ Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;

→ Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;

→ Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

The exact requirements of the above mentioned SMRs vary between Member States and depend on the way the requirements of the Birds Directives are translated into their laws and administrative measures (e.g. management plans for Natura 2000 sites) applicable to farmers, and consequently cross compliance.

In addition to meeting the SMRs, farmers must also keep land in good agricultural and environmental conditions (GAEC) which sets a minimum level of maintenance through, for instance, compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards, for example, for[56]:

– Minimum livestock stocking rates or/and appropriate regimes;
– Establishment and/or retention of habitats;
– Prohibition of the grubbing up of olive trees;
– Maintenance of olive groves and vines in good vegetative condition.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit scops owl:

- **Less Favoured Area payments:** (Article 37) linked to existing farming practices where they support upkeep of traditional low-input farming systems;

- **Agri-environmental schemes:** (Article 39) linked to voluntary measures such as regular grazing or mowing of the semi-natural grasslands in areas where scops owl are or could be present, reducing or prohibiting the use of pesticides, maintaining grassy strips as foraging areas on the farm, removing scrub, putting up nest boxes;

- **Reimbursement of non-productive investments**: (Article 41) can cover a range of investments from on-farm investments linked AE schemes or to measures identified in management plans such as converting to organic production methods, replanting traditional orchards, or which enhance the public amenity value of a Natura 2000 area;

[56] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

- **Conservation of rural heritage** (Article 57)**:** for instance to cover the cost of drawing up management plans for sites hosting scops owl, undertaking habitat restoration measures in areas currently or potentially suitable for scops owl, launching awareness campaigns on scops owl conservation requirements amongst farmers.

In addition, the following could also be used:

- **Training and information** (Article 21): e.g. could help make AE schemes more effective and train farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as scops owl;
- **Farm Advisory Services (FAS)** (Articles 24 and 25): to advise farmers on how to apply cross compliance rules e.g. those based on the Habitats and Birds Directives that are beneficial, inter alia, for scops owl:
- **LEADER** (Article 61): integration of scops owl conservation into area-based local development strategies and enhancement of dialogue and collaboration between farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF SCOPS OWL FRIENDLY MEASURES UNDER RDP

The following provide some examples of how different countries have introduced scops owl friendly farming through the Rural Development Regulations for 2000-2006 and 2007-2013. No schemes were found that directly targeted the conservation of scops owl but a review of a selection of RDPs for 2007-2013 reveals several agri-environment measures of potential indirect benefit for the species.

These can be summarised as:

- Measures to support extensive grazing systems;
- Measures to maintain and create landscape features, such as hedges and farmland trees.
- Measures to maintain traditional orchards with spontaneous understorey managed by mechanical means or grazing.
- Organic farming.

However, it should be emphasised that these measures are only *potentially* beneficial. There are several critical questions which influence the extent to which this potential is realised on the ground. Further details are provided in the outputs of the Wildlife and Sustainable Farming Initiative:
http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

AUSTRIA

In the Austrian RDP for 2007-2013, measures of potential benefit to scops owl habitat are found under the general heading of agri-environment schemes (ÔPUL). There are three specific and one more general sub-measure of relevance to the species:

- **Organic Farming:** Because the use of agricultural pesticides is regarded one of the major threats to scops owl, their absence in organic farming makes this farming system beneficial to many species of wildlife. Promotion of organic farming is a major element of Austrian agricultural policy, and an estimated 17.5 % of the total agri-environment spending during 2007-2013, or c. 90 mil. EUR/year, will be used for supporting organic farming.

  The yield in organically farmed orchards is significantly lower than in conventional orchards, typically only 50-60 % of the conventional yield, and the labour costs are usually higher. The lower yield and higher costs are only partly compensated by higher prices for organically grown fruit. The annual support payment in orchards is therefore relatively high (750 EUR/ha).

- **Integrated Production:** Integrated production incorporates several of the elements of organic farming and thereby also delivers some of its benefits, first of all through a general reduction of the use of pesticides and

an emphasis on using the most environmentally benign products. The use of plant protection products is minimized through prophylactic measures, e.g. by improving conditions for natural enemies of pests. Only biological and chemical plant protection products that are approved for integrated production may be applied, and there are additional restrictions on the number and frequency of applications.

Yields and prices are comparable to those of conventionally farmed orchards. Financial support compensates the higher costs associated with mechanical weed control and the necessary monitoring of pests and diseases, as well as the training costs. The annual payment is 300 EUR/ha. The sub-measure also existed during the previous programming period (2000-2006), when c. 8,000 ha of orchards (including hop gardens) were covered by the scheme.

- **Protection of grassland areas with scattered fruit trees**: (*Streuobstbestände*). This sub-measure aims at protecting meadows with scattered fruit trees (*Streuobstwiesen*) as well as permanent grassland areas with rows of fruit trees (*Streuobstreihen*). In a traditional *Streuobstwiese*, various kinds of fruit trees (usually of old types) are scattered across a meadow. Such areas are very important landscape elements and may also be of great importance to biodiversity. They also constitute an almost ideal habitat for scops owl.

  Because the yields of the trees are usually lower than in more modern orchards and the mix of different types, as well as the distribution of the trees, makes the use of efficient harvest techniques difficult, continued use and management of such *Streuobstbestände* is often not profitable. To be eligible for support, a *Streuobstwiese* must hold at least 30 fruit trees per ha and an area with *Streuobstreihen* must have at least 5 fruit trees per row and a maximum of 20 m between the rows. Areas as small as 0.10 ha may be included under the scheme. Trees may not be cut unless they are hit by disease or old age, and the minimum tree density must be retained through re-planting with indigenous types. The area must be grazed or shall be mown at least once a year with removal of the harvest.

  The annual payment is 120 EUR/ha. The sub-measure also existed during the previous programming period, when c. 13,000 – 15,000 ha of *Streuobstbestände* (somewhat short of the goal of 18,000 ha) were covered by the scheme.

- **Protection and sympathetic management of *Streuobstwiesen***: may also be funded under the more general sub-measure 28, which aims at conservation and management of areas of particular importance for nature and water protection. It is a framework scheme, under which management aims and prescriptions for the target area(s) are laid down based upon individual assessment and advice. An estimated 7 % of the total agri-environment spendings during 2007-2013, or c. 36 mil. EUR/year, will be used for payments under this sub-measure. Standard packages with aims and prescriptions are defined by the authorities of each Federal State.

  In the state of Kärnten, which holds one of the two major populations of scops owl in Austria, conservation and management of *Streuobstwiesen* may be funded under this sub-measure. The following conditions apply:
  - Dead or dying trees, or parts of trees, must be retained.
  - Re-planting (in case of gaps in the tree stand) shall be with tall standard fruit trees, chosen from a list of approved types.
  - No pruning, except for conservation purposes (e.g. removal of mistletoe).
  - The area shall be extensively grazed or mown, with a maximum of two cuts per year.
  - No mowing before 1 June (or later, depending on the region).
  - No application of pesticides, fertilizer or manure (except from *in situ* grazing livestock).
  - No burning.

The annual payment is 292 EUR/ha (or higher if, e.g., the configuration of the ground makes use of the area difficult).

ITALY

Several regional RDPs (2007-2013) in Italy include some measures that may benefit the scops owl. Although not intended specifically for this species, the land uses (e.g. low-intensity grazing systems) and landscape elements (e.g. lines of trees) that are promoted in various ways by these measures are of potential benefit for scops owl.

Emilia Romagna, for instance, provides financial support under the agri-environmental measures for conserving existing natural and semi-natural elements that are typical of the agrarian landscape inside cultivated areas, such as tree lines or isolated trees, hedgerows and small woodland areas, ponds, pools and springs (*Action 9 - Conservation of natural and semi-natural areas and the agrarian landscape*).

All existing features must be surrounded by an external protective strip of 2-5 m that will not be cultivated, where the use of fertilizers, herbicides and pesticides will not be allowed, and vegetation could be controlled only manually or with mechanical means between 1st August and 20th February. The beneficiary is committed to preserve the targeted natural elements over 10 years on a minimal surface of at least 5% of the utilisable agricultural area (UAA) in its farmland (but less than 10% of UAA)

Priority is given to Natura 2000 sites and natural parks, particularly in plains (where natural elements have disappeared and biodiversity is impoverished) and hills, in areas considered vulnerable in relation to the Nitrates Directive (91/676/EEC) and in important areas for water recharge.

Extensive grazing is also supported under agri-environmental measures in the Emilia-Romagna Rregion (*Action 8 – Extensive grazing*), with the aim of increasing pastureland in areas where forests and bushes are under expansion (e.g. Apennines) and permanent grasslands are disappearing or have become very rare owing to agriculture intensification (e.g. in plains). The measure aims to contribute to the preservation of biodiversity and in particular certain species of fauna that are present in hills and mountain areas surrounding the forests.

The action supports the conversion of arable land into pastureland and the maintenance of permanent grassland and meadows, including the recovery of abandoned mountain pastureland. It must be implemented over a 5 year period. The beneficiary commits not to use herbicides, pesticides and other phyto-sanitary products, to use a grazing load below 1 LU/ha, to mow at least once a year where the grassland is not grazed and to remove invasive bush and tree species in the natural protected areas and in Natura 2000 sites.

Support to non-productive investments (measure 216) is also available in the Emilia-Romagna Region (*Action 3 – Restoration of natural and semi-natural areas and the agrarian landscape*) for the recovery of natural and semi-natural elements that are typical of the agrarian landscape. The natural and semi-natural elements targeted are: hedges and tree lines; small woods <0,5 ha separated from other woodland by an herbaceous strip of at least 10 m width.

The species to be used for planting must be tree and bush species belonging to the native local flora or that have been historically present in the area. Where fruit trees are used, they must belong to the ecotypes that are locally threatened. A protective strip of 2-5 m must be created along the hedgerows. The latter must be formed by at least five different species (from those included in an annex to this action). Small woodlands must be formed by at least four different tree species and one bush species.

The action is to be implemented in plains and hills. In hills, the action can be carried out exclusively in land that is also subject to "organic production" (Action 2 of agri-environmental measures in Emilia Romagna). Priority is given to agricultural land included in vulnerable areas according to the Nitrates Directive (91/676/EEC), Natura 2000 sites and other important areas for surface and ground water protection.

PORTUGAL

In the RDP 2007-2013 for Portugal, in addition to Integrated and Organic Production there is a series of agri-environment measures called Integrated Territorial Interventions (ITI) that are implemented according to 9 priority zones (Natura 2000 sites and natural parks). These are aimed at supporting the management of farmland and forest areas of high natural value.

The measures include:

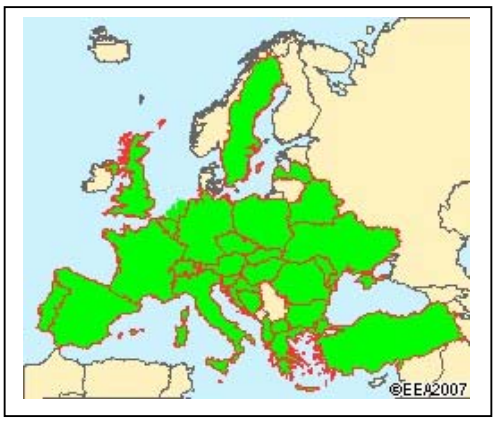
- Agri-environmental measures aimed at:
  - Conserving cultivated land of high nature value and the characteristic landscape elements;
  - Preserving the habitats of certain threatened fauna and flora species;
- Forest-environment payments;
- Non-productive investments necessary to fulfil the agri-environment and forest-environment objectives;
- Creation of the capacity for the promotion and monitoring of the relevant measures;
- Elaboration of the planning tools necessary for an appropriate management of Natura 2000.

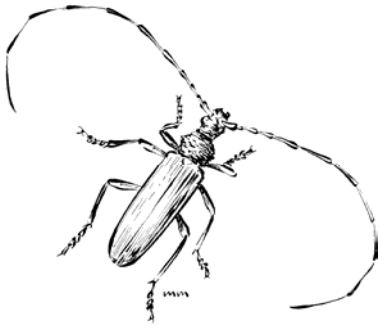
Among the measures included are the following of potential relevance for scops owl:

- Support for almond and olive orchards on terraces, including conservation of features such as walls, hedges and tree lines (implemented in 2 of the 9 zones);
- Support for grazing of HNV permanent pastures (implemented in 4 zones);
- Management of grazing in Mediterranean scrublands (implemented in 1 zone);
- Conservation of riparian forests;
- Maintenance of trees, stone walls and other elements that are typical of the agrarian landscape, as well as the hedges with autochthonous tree and scrub species between cultivated plots or in their borders, not using herbicides;
- Maintenance of water points accessible to the fauna during the critical period of the summer;
- Maintenance of tree and bush vegetation along freshwater courses.

Great capricorn beetle *Cerambyx cerdo*

Habitats Directive – Annex II & IV





Cerambyx cerdo has its distribution area in the Western Palearctic and is present almost all over Europe, North Africa and Asia Minor*.

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

SPECIES INFORMATION

ECOLOGY

- The great capricorn beetle is a large beetle with a thin body and very long antennae which are longer than the body;
- It completes its life cycle in 3-5 years. Females can lay up to 300 eggs. The eggs are laid in deadwood part of living, very old and unshaded trees (usually injuries on the trunk or in branches of very old trees) between May and September and larvae appear around 10 days later;
- During the first year, the larvae stay under the bark and in the second year they go deeper into the wood, on which they feed;
- At the end of the last stage, the nymph makes a gallery that opens to the outside but the adults remain sheltered in the chamber during the winter;
- The adults emerge between May and September depending on local climatic conditions and latitude. They mate a few days later and live for 3-5 weeks;
- Adults are weak flyers and very rarely fly more than 500 meters from their tree;
- Adults are generally active at twilight. They feed on the sap that appears on injuries in the bark and on mature fruit.

HABITAT REQUIREMENTS

- The great capricorn beetle is a saproxylic (wood-eating) species that usually lives in deadwood of standing veteran oak trees (*Quercus sp)* and other deciduous species such as chestnuts, birch, willow, ash, elm, walnut, hazel, carob, beech, hornbeam etc…In parts of its range, the range of possible host trees is much more restricted, i.e. to white oaks (Quercus robur and Q. petraea).

- Generally it is found on forested hills at low altitude. It is linked to the decay phase of trees and thus very rarely found in forests today. Instead, it is most abundant in old natural open semi-natural forests and in veteran trees in man-made environments, such as on orchards, traditional farmland and in landscape parks;
- The species normally selects old and decaying trees, such as oaks that are over 100 years old and have a diameter larger than 40cm.

THREATS

The species is declining across Northern Europe but is still relatively common in South France, Spain and Italy. Nevertheless, even here, the rate of decline is worrying. Main threats area as follows:

- Habitat loss:The loss of natural and semi-natural forests containing old and decaying trees and their replacement with young or non-native plantations is a major problem for saproxylic beetles in general and the great capricorn beetle in particular;
- Lack of veteran and decaying trees: is a problem even in semi-natural forests as dead and decaying wood is often removed for safety reasons (especially in parks and urban habitats) or as part of standard forest management practices and for reasons of forest health protection;
- Lack of tree continuity: Because the great capricorn beetle usually flies only very short distances it is essential that there is a range of trees of all ages present so that when the 200+ year old trees are finally gone the species has other old trees to move into. A continuity in age classes is important for the long term survival of the species;
- Shading of the trunks of habitat trees by regeneration of the surrounding trees and shrubs, especially in stands that used to be grazed or coppiced;
- Proliferation of exotic shrub species like Eastern Black Cherry (Prunus serotina) and planting of shade-loving trees, especially conifer species, in the vicinity of the habitat trees often has the same effects and is as detrimental to habitat tree quality;
- Forest sanitary measures: In some parts of Europe, the great capricorn beetle is considered a pest as the larvae channels are thought to further weaken already aging trees and damage the wood. In some parts of its range, foresters sometimes attempt to eradicate the species by injecting trees with insecticides.

FOREST MANAGEMENT PRACTICES FAVOURABLE TO CAPRICORN BEETLES

Forestry practices that are favourable for great capricorn beetles include:

- Maintain natural and semi-natural forests: with a diverse age structure, autochtonous tree species and a sufficient number of mature and decaying old trees at different stages of senescence;
- Adjust forestry practices: In managed forests measures should be taken to ensure there is a sufficient continuum of trees of different ages and that habitat trees are left in place. Exotic trees should be thinned out. It is also recommended to maintain unexploited areas where trees can age naturally and die. 1-10 dead or decaying trees per 5 ha (trees >35 cm diameter) is recommended by the Office National des Forets (France);
- Increase amount of deadwood: artificially by creating snags and leaving logs and/or a proportion of tree trunk standing after felling; some studies have indicated that there should be a minimum of around 30m³ of dead wood per ha or 3-8% of the total volume of wood present;
- Prevent persecution: through appropriate management of the forest to ensure a balance of all tree ages and structure and avoiding unnecessary forest sanitation. It is important to dispel concerns that the great capricorn is a major pest species. It only uses trees that area already aged and predisposed in some way;
- Maintain grazing: in wooded pastures, forest glades and parklands with old trees to maintain open vegetation and prevent scrub invasion.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the great capricorn beetle has particular habitat requirements that are unique to its lifecycle. However, several of the measures mentioned above would also benefit other species listed in the Habitats and Birds Directives that are typical of these habitats. Retention of veteran deciduous trees is the key management measure for several other species, such as:

Other saproxylic insects:
Stag beetle, *Lucanus cervus,*
Rosalia longicorn, *Rosalia alpina,*
Violet Click Beetle, *Limonius violaceus*
Hermit beetle, *Osmoderma eremita*

Avian species:
Tawny Owl, *Strix aluco*
Middle Spotted Woodpecker, *Dendrocopos medius*
Short-toed Treecreeper, *Certhia brachydactyla*
White-backed Woodpecker, *Dendrocopos leucotos*
Grey-headed Woodpecker, *Picus canus*
Syrian Woodpecker, *Dendrocopos syriacus*
Red-breasted Flycatcher, *Ficedula parva*
Collared Flycatcher, *Ficedula albicollis*

Mammals:
Bechstein's bat, *Myotis bechsteinii*
Barbastelle bat, *Barbastella barbastella*
Pine Marten, *Martes martes*
Greater mouse-eared bat, *Myotis myotis*

OBLIGATIONS ARISING FROM THE HABITATS DIRECTIVE

The great capricorn beetle is protected under the EU Habitats Directive 92/43/EEC. It is listed in annexes II and IV. As a result, Member States must take the following measures to ensure its conservation:

General requirements

Member States must undertake measures that are designed to maintain or restore the great capricorn beetle at a '*favourable conservation status'* in the EU (cf Article 2).

The conservation status of a species is taken as 'favourable' when:
- populations are maintaining themselves over the long term and are no longer showing signs of continuing decline;
- their natural range is not being reduced;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis.

Protecting the species

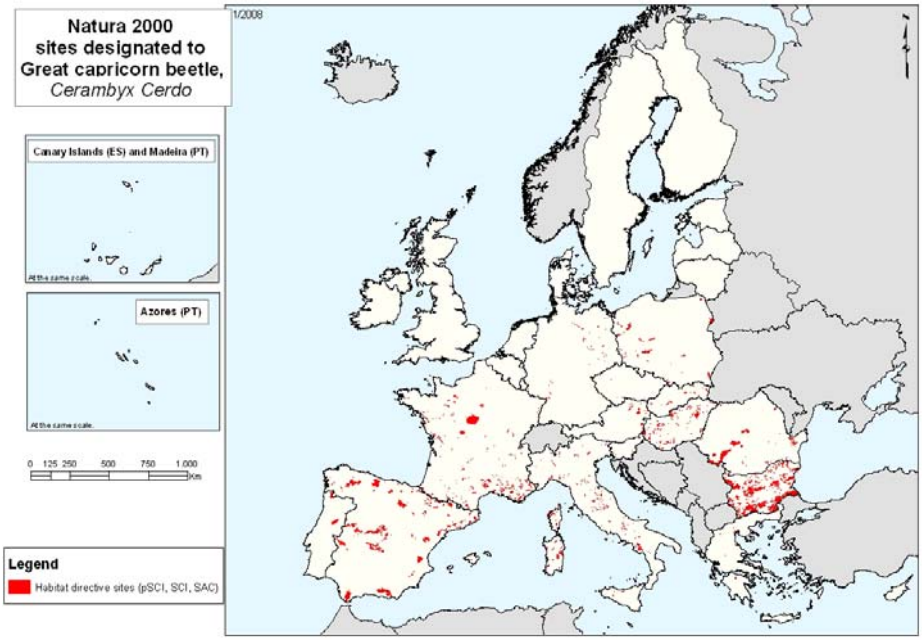
Member States shall take the requisite measures to establish a system of strict protection for the great capricorn beetle, and in particular to prohibit the following (cf Article 12):
- deliberate killing or capture by any method;
- deliberate disturbance, particularly during breeding, rearing, hibernation and migration;
- deliberate destruction or taking of eggs in the wild;
- deterioration or destruction of breeding sites or resting places;
- the keeping, sale and transport of specimens taken from the wild.

Derogations to the above are allowed in some special circumstances provided that no satisfactory alternatives exist and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status (Article 16).

Protecting core habitats for the species under Natura 2000

Because the great capricorn beetle is listed in Annex II of the Habitats Directive, Member States must, in addition to the general provisions referred to above, designate sites under Natura 2000 to maintain and restore the species to a favourable conservation status (cf Articles 1 and 3).

As of November 2008, a total of 1207 Sites of Community Importance (Natura 2000 sites) have been designated in the EU where the great capricorn beetle is recorded being present.



Managing Natura 2000 sites

Within these sites Member States must take appropriate steps to avoid the deterioration of habitats of the great capricorn beetle as well as any significant disturbance. Member States shall also take positive measures to conserve and, if necessary, restore the species to a favourable conservation status. This means establishing the necessary conservation measures corresponding to the ecological requirements of the species involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans (Cf Article 6).

In practice management plans are very often developed for each SCI within Natura 2000. Management plans are useful documents in that they:

- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;
- analyse the socio-economic and cultural context of the area and the interactions between different land uses and the species and habitats present;
- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases projects with significant negative impact on Natura 2000 sites can still go ahead if no viable alternatives exist and if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive which apply to SPAs classified under the Birds Directive).

Protecting and managing landscape features outside Natura 2000

With a view to improving the ecological coherence of the Natura 2000 Network, Member States shall endeavour, in their land use planning and development policies, to maintain and restore landscape features which are of major importance for wild fauna and flora (cf Article 10). Such features could be linear structures (e.g. small rivers with their banks, hedgerows or rough herbaceous vegetation at field boundaries, lines of old trees) that act as dispersal corridors or small ponds etc acting as stepping stones. Preservation and proper management of these landscape features could be of great value for the migration, dispersal and genetic exchange of species with isolated populations.

GREAT CAPRICORN BEETLE CONSERVATION THROUGH RDP AND CAP

The obligations arising under the Habitats Directive for the great capricorn beetle can be integrated into agricultural and rural development policy in the following manner:

Cross compliance

One of the 19 Statutory Management Requirements (SMR) of the CAP on mixed farming and forestry holdings receiving single farm payments under the CAP concerns the respect of the following articles of the Habitats Directive which are relevant for the great capricorn:

- Article 6: within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

In addition to meeting the SMRs, farmers must also keep farms in good agricultural and environmental conditions (GAEC) which requires a minimum level of maintenance through compulsory standards for:

- Retention of landscape features including where appropriate, hedges, ponds, ditches, trees (in line, in group or isolated) and field margins;
- Avoidance of encroachment of unwanted vegetation on agricultural land;
- Protection of permanent pasture.

Member States can also voluntarily set standards for[57]:

- Minimum livestock stocking rates or/and appropriate regimes;
- Establishment and/or retention of habitats;
- Prohibition of the grubbing up of olive trees;
- Maintenance of olive groves and vines in good vegetative condition.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit great capricorn beetles:

- **Natura 2000 payments** (Article 46 of EAFRD) - annual payments per hectare of forest to private forest owners or associations in order to compensate for costs incurred and income foregone resulting from the restrictions on the use of forests due to the implementation of Habitats and Birds Directives in the area concerned;

[57] *These standards are however compulsory for those Member States who had already set a minimum requirements for these standards before 1 January 2009 or where national rules addressing the standard are applied in the Member State.*

- **Forest-environment payments** (Article 47 of EAFRD) per hectare of forest to cover forest-environmental commitments going beyond the relevant mandatory requirements. This could include maintaining or increasing the amount of dead wood on the ground, diversifying the forest structure to allow a continuum in age of trees from young to very old;
- **Support for non-productive investments (**Article 49 of EAFRD) in forests: (a) linked to the achievement of commitments undertaken pursuant forest-environment payments, for instance thinning out or removing exotics or other environmental objectives; (b) which enhance the public amenity value of forestz and wooded land of the area concerned;
- **Conservation of rural heritage** (Article 57)**:** for instance to cover the cost of drawing up management for Natura 2000 sites, undertaking habitat restoration measures, launching awareness campaigns on great capricorn beetle conservation requirements amongst farmers.

In addition the following could also be used:

- **Training and information** (Article 21): e.g. could help make forest-environment and agri-environment schemes more effective and train forest owners/managers, farmers and experts in the Farm Advisory Services on conservation and management requirements linked to wildlife such as great capricorn beetles;
- **Farm Advisory Services (FAS)** (Articles 24 and 25): to advise foresters and farmers on how to apply cross compliance rules, e.g. those set for the Habitats and Birds Directives that are beneficial, inter alia, for great capricorn beetles:
- **LEADER** (Article 61): integration of great capricorn beetle conservation into area-based local development strategies and enhancement of dialogue and collaboration between foresters, farmers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF CAPRICORN BEETLE FRIENDLY MEASURES UNDER RDP

The following provide some examples of how countries have introduced support for beetle friendly forest management through the Rural Development Regulations for 2000-2006 and 2007-2013. No scheme is focussed specifically on the great capricorn but several can benefit the species indirectly. Further details are provided in the Wildlife and Sustainable Farming Initiative: http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

Germany

An ecological forestry scheme has been introduced under forest-environment measure (EAFRD) in the 2007-2013 period. It supports actions to increase ecological stability of forests by support of contractually defined usage and cultivation agreements which lead to a sustainable conservation and improvement of protective and ecological roles of forests.

Beneficiaries are owners of forest areas who can enter the scheme as natural and legal persons of private law or associations thereof, and municipalities. Forest areas have to be located within a) designated Natura 2000 areas or b) in special protection areas pursuant to Federal State law.

If a Natura 2000 management plan exists, the agreement follows the recommended development measures in the management plan for the improvement of the conservation status of forest biotope species. Applicants commit to maintain achieved forest conditions for a fixed time horizon which goes beyond the final payment date.

Measures are differentiated by:

- Measures to maintain and develop ecologically valuable forest biotopes (this measure is available since 2005);
- Temporary nature-conservation related usage restrictions;
- Maintenance and re-introduction of traditional ways of forest utilisation, like coppicing;
- Restoration of previously drained wetlands in forests.

Payments are calculated on the basis of:

- Renunciation of cutting potentially exploitable (='ready-for-harvest') trees for a period of 20 years;
- Temporary renunciation of conducting any forestry operations, to protect scarce species during brooding and rearing time.

Hungary

In Hungary, private forests represent almost 9% of the territory of the country. 207,000 ha of private forests were designated as Natura 2000 sites.

Natura 2000 payments

These payments offer potential to finance appropriate management of forests which takes into account the conservation objectives of Natura 2000 sites and the statutory land use provisions regarding forests in these areas and need to be incorporated into the forest management plans. The conditions for forest exploitation on a Natura 2000 area are to be defined in the district forest plans and in the yearly forest plans. The special requirements of the individual Natura 2000 habitats may also appear in the forest maintenance plans.

The collection of data in Natura 2000 forests and updating them is only possible through the assistance of the owners and managers, and this measure also supports this. The forester must continuously contribute to data collection on species and habitats protected under the EU Nature Directives. The beneficiaries (private persons, municipalities and their associations) must be registered with the forestry authority and must have a forest management plan approved by the forestry authority. The minimum size of eligible area is 0.5 hectare and the minimum size of the lot shall be 0.3 ha.

Forest-environment payments

The Rural Development Programme of Hungary includes eleven targeted schemes within the Forest-environment measure; one of them is of particular relevance for great capricorn beetle: *Ensuring special forest habitats, and the conditions for natural forest regeneration*. The Hungarian RDP acknowledges that nowadays the vast majority of the wood stock in the country is often of the same age. Important stand components are missing such as understocked areas, old trees, trees with irregular shaped trunk and crown, standing and laying deadwood, mainly the thick deadwood and trunk stubs, and the root system of fallen wood.

This measure is aimed at favouring the creation and maintenance of microhabitats (keeping old trees with cavities, preserving nesting places and conserving deadwood). It also supports forest management activities such as: removal of the undergrowth, voluntary preservation of tree groups, natural forest regeneration, bush regulation. The term of the support is 7 years for creating microhabitats and 5 years for control of undergrowth. The smallest area of land which can be supported is 1 ha. Forest-environmental yearly payments are between 40€ per hectare (minimum payment) and 200€ per hectare (maximum payment).

Training and information actions

As forest-environmental schemes do not have any antecedents in the Hungarian regulations and the funding system is complex, the successful implementation of the measure should be facilitated by information, training and professional advisory systems provided for the forest owners. This may be carried out under the measure "*Vocational training and information actions*" included in the Hungarian RDP, which clearly states the connection between this measure and the efficient implementation of the Natura 2000 payments and forest-environmental payments.

United Kingdom

England: Forest-environment measure (225)

Rationale
A number of adverse trends affecting the biodiversity of woodland, including a decline in the abundance and diversity of ground flora, birds and butterflies, have been identified. Although there are a number of causes of the decline, the cessation of traditional forms of woodland management and increased grazing by deer are thought to be important causal factors. Intervention under RDP is available to support regular management operations to reverse such decline and to enhance the biodiversity interests. Such management goes beyond and above required statutory minimum (the UK Forestry Standard). Support for the management of existing woodland is primarily delivered under the English Woodland Grant Scheme (EWGS). The aid provided by EWGS includes:

Forest-environment payments – an area-based standard grant paid in five annual instalments and called Woodland Management Grant (WMG). The eligible landowner must assess, consider and record the existing and potential environmental and social values of his forest. Woodland properties above a minimum size are also required to be certified to the UK Woodland Assurance Standard (UKWAS). This requires a full management plan to be prepared. The work that may be undertaken under the scheme is kept under review and modified as required, but initially will include:

- management to benefit biodiversity interest;
- sustainability monitoring;
- soil and ground water protection;
- woodland light management (canopy);
- woodland open space management (floor);
- management of deadwood habitat;
- management of veteran trees;
- management of features of archaeological and cultural heritage interest;
- maintenance of woodland boundaries;
- grey squirrel control;
- controlling non-native species;
- managing the impacts of deer.

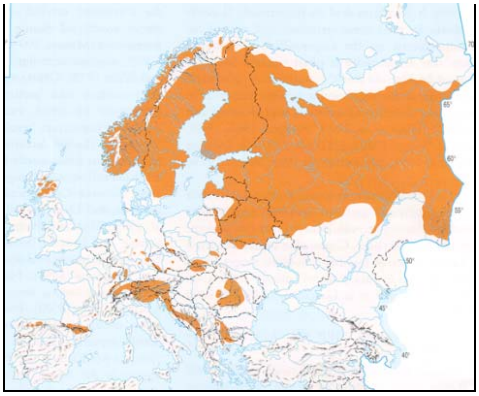
The EWGS requires the applicant to specify the work from the above list that will be undertaken as necessary, to meet the needs of the woodland, as determined by the assessment or management plan. Where the resources available for this measure will not permit all applications which meet the general eligibility criteria for WMG to be funded, applications will be selected by limiting eligibility to those supporting specified targeted environmental and biodiversity priorities. The priorities will be selected to specifically enhance biodiversity or preserve high-value forest ecosystems or reinforce the protective value of forests with respect to soil erosion, maintenance of water resources and water quality and natural hazards.

The Forestry Commission will determine the priorities with reference to the UK Forestry Strategy and delivery policies and the objectives of national and regional action plans, such as Biodiversity Action Plan, Habitat Action Plans and Regional Forestry Action Plans. The priority criteria for funding will be published as eligibility criteria for WMGs in EWGS literature. Examples of the priorities that may be used to select applications include:

- woodland within Sites of Special Scientific Interest (SSSIs) (including woodlands in Natura 2000 sites);
- ancient woodlands and their sites;
- semi-natural woodlands;
- semi-nature and native woodland habitats;
- protected or threatened woodland species.

Capercaillie *Tetrao urogallus*

Birds Directive – Annex I, II & III



Tetrao urogallus is confined to the Palearctic region of Eurasia east to c 125°E*

	AT	BE	BU	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IR
Present														
	IT	LV	LT	LU	MA	NL	PL	PT	RO	SL	SV	SE	UK	
Present														

SPECIES INFORMATION

ECOLOGY

- The capercaillie is a huge bird of the grouse family which is easily distinguished by its very large size, dark colouring, scarlet skin over the eye and ample fanlike tail;
- Sexual dimorphism is highly pronounced, males weigh 4-5 kg whilst females are no more than 2kg;
- Capercaillie are mainly resident and both sexes show lifelong fidelity to individual home ranges;
- Most young males settle close by, but young females tend to disperse distances of 5-10 km ;
- In autumn and winter, females and young males form small groups of usually less than 10 and not more than 20 individuals;
- Starting in late winter, males display collectively in traditional 'lek' sites to attract the females; once a male has selected a lek site it will return to that site throughout its life;
- There is no pair bonding, instead the males tend to form temporary harems before the females withdraw to nest alone;
- The nest is a shallow depression on the ground, sparsely lined with vegetation, and usually placed in thick cover, often at the foot of a tree;
- In Scotland and Central Europe egg laying occurs from mid-April to early May, becoming later with increasing altitude. In northern Scandinavia, laying takes place from mid-May to early June;
- Usually only one brood is produced a year, each clutch contains 6-8 eggs. Incubation is ca 26 days with hatching occurring from late May to early June, depending on latitude, altitude and climate;
- Young are precocious and eat mainly insects and spiders, but they are very sensitive to cold and require brooding until 3 week olds. They become independent after their 4th month;
- Adults eat predominantly plants. In winter they feed almost exclusively on conifer needles in crowns of trees. From May to October, the birds feed mainly on the ground on leaves, buds, flowers and fruits. Important summer shrubs include bilberry, crowberry, horsetails, mosses and woodrush.

* *Drawing courtesy of RSPB*

HABITAT REQUIREMENTS

- Capercaillie inhabits boreal and temperate, predominantly coniferous, forests;
- The species occupies several ecologically distinct coniferous and conifer-dominated mixed forest types from tall, dense, dark forests of *Picea* and *Abies* through to lighter, often more open, taiga forests with *Pinus* and *Larix* and mixed forests with an understory of *Betula* and *Populus*;
- Habitat requirements vary over the year. In winter good supplies of conifer shoots and needles are essential. Mature stands of *Pinus* and *Abies spp* are thus preferred;
- On the other hand semi-open areas are also required within the forest for lek sites;
- In early spring, females eat the shoots of cotton grass *Eriophorum sp* and so bogs and mires should also be present. Such areas are also used by chicks for feeding;
- During the summer and autumn, open coniferous or mixed stands with a moderate canopy cover and a rich ground vegetation dominated by bilberry, *Vaccinium spp* is essential. These habitats not only provide an abundant source of food for the chicks but also warmth and cover;
- In boreal and montane zones, climax forests are sufficiently open to suit capercaillie, but in parts of the central European range, mature forest stands are often too closed and dark for the species;
- Preferred habitats contain coniferous trees, open structure with moderate canopy cover of 50-60% and a rich ground vegetation dominated by bilberry *Vaccinium myrtillus* and other ericaceous shrubs;
- Capercaillie also need extensive contiguous forests intermixed with bogs and younger patches of trees in clearings. That is why it is now largely restricted to remoter areas such as the upper slopes of forested mountain ranges away from human disturbance and altered habitat structures;
- Model assessments of minimum viable population size have suggested that the minimum area required to sustain a viable isolated population of ca 450 individual is 250km². Ideally suitable capercaillie habitat should be contiguous across this area, if it is not, smaller patches (50-100km²) of suitable habitat should be sufficiently interconnected to allow dispersal and exchange between sub-populations.

THREATS

The capercaillie is still relatively widespread in the boreal region but its presence is much reduced in other parts of Europe. The threats affecting the species in Western Europe include the following:

- Habitat loss, fragmentation and degradation: are assumed to be the major cause of capercaillie decline. Habitat changes occur at various scales: the species is not only sensitive to changes in habitat structure within a forest but also to changes at a landscape level since it requires extensive contiguous forest areas for its survival;
- Intensification of forestry practices: linked to the above intensive forestry practices destroy and fragment the capercaillie's habitats, causing loss, degradation and fragmentation of habitats. Detrimental changes in forestry practices include clear felling, afforestation with dense monocultures with all trees of similar size and age which provide no structural diversity;
- Abandonment of forestry practices: Some forestry practices, particularly in central Europe, are however beneficial for the species since they encourage a more open and diverse forest structure. Such practices include collection of forest litter, cattle grazing and selective felling of small groups or individual trees which creates an open clearing;
- Pollution: Increased levels of airborne nitrogen have led to soil eutrophication over large areas of western and central Europe. Associated changes in vegetation are disadvantageous for ericaceous shrubs preferred by capercaillie. Airborne pollution with heavy metals especially cadmium, may also be a problem for the birds as they seem to accumulate cadmium strongly;
- Overgrazing: of woodland plants and shrubs by livestock and/or deer reduces the availability of brood habitat vegetation and the associated insect fauna that is vital for early chick development;
- Predation: Land use changes and declining persecution of predators has resulted in an increase in generalist predators such as crows and foxes as well as alien species like the American mink and racoon dog;

- Over-exploitation: The lekking system makes the species susceptible to over-exploitation, because displaying males are an easy target. Trophy hunters usually prefer to shoot high ranking males. Capercaillie hunting is legal in several EU countries but may sometimes be unsustainable if not properly controlled and regulated. Illegal hunting and poaching is also a problem;
- Collisions: In Fennoscandia, significant numbers of capercaillie are killed by collision with powerlines. Collisions with deer fences may also cause high rates of mortality;
- Human disturbance: by forestry activities as well as tourism and leisure activities such as hiking, skiing, mountain biking etc can cause serious problems in areas where the population is restricted to small fragmented sites. Birds may be permanently or temporarily excluded from suitable habitats which depresses breeding success;
- Climate change: fluctuation over both the short and long term could have a significant impact as chick survival is highly dependent on weather conditions. A succession of years with wet and cold conditions can lead to serious population declines. The habitat of the species may also be affected in the longer term by climate change.

FOREST MANAGEMENT PRACTICES FAVOURABLE TO CAPERCAILLIE

The capercaillie has a contiguous distribution in the northern boreal forest where it is still relatively abundant. By contrast, the south-central and western populations in Europe are much reduced and highly fragmented. In both cases capercaillie is very dependent on the way a forest is managed:

- Appropriate forest management activities: should ensure that the forest habitat has a suitable mix of coniferous trees, a varied structure with moderate canopy cover of 50-60%, open areas and rich ground vegetation dominated by bilberry and other ericaceous shrubs. Timber harvesting can be compatible provided it is done selectively and on a rotational basis in function of the capercaillie's needs. Taking heavily managed forests out of active management altogether is not always appropriate as it may prevent the development of a varied forest structure;

- Maintaining undisturbed refuges: in areas where human disturbance is a problem, patches of undisturbed habitat with no roads or tracks, tourist infrastructures or settlements should be maintained. The total area of undisturbed forest patches should be large enough to support the local population and should be interconnected with other refuges;

- Controlling grazing by cattle and deer: Some grazing is beneficial as it helps to maintain open patches within forests but this should avoid the overgrazing of woodland plants that are used by capercaillie;

- Removal of fences: used for excluding deer in areas used by capercaillie. If complete removal is not an option then the fences should be made as visible as possible for the capercaillie;

- Control exploitation: Hunting should be carefully regulated to ensure that it does not affect the species conservation. Poaching should be controlled and the existing laws effectively enforced;

- Control of human disturbance: Forestry work between February and July should be reduced to a minimum; especially where the remaining distribution area is highly fragmented. Careful visitor channelling away from capercaillie areas and restrictions to access to areas at certain times of the year should also be introduced in areas used for recreation. This is best done in dialogue with stakeholders and should be accompanied by awareness raising campaigns.

OTHER SPECIES BENEFITING FROM THESE CONSERVATION MEASURES

Like every species, the capercaillie has particular habitat requirements that are unique to its ecology and lifecycle. However, several of the measures mentioned above would also benefit other species, some of which are listed in the Habitats and Birds Directives, e.g.:

Brown bear, *Ursus arctos*
Hazel grouse, *Bonasia bonasia*
Great grey owl, *Strix nebulosa*
Tengmalm's owl, *Aegolius funereus*
Three-toed woodpecker, *Picoides tridactylus*
Wolf, *Canis lupus*
Lynx, *Lynx lynx*
Pygmy owl, *Glaucidium passerinum*
Ural owl, *Strix uralensis*
Black Woodpecker, *Dryocopus martius*
Scottish crossbill, *Loxia scotica*

OBLIGATIONS ARISING FROM THE BIRDS DIRECTIVE

The capercaillie is protected under the EU Birds Directive 79/409/EEC. Member States must take the following measures to ensure its conservation.

General requirements

Member States are required to take the requisite measures to maintain the population of the capercaillie at a level which corresponds in particular to its ecological, scientific and cultural requirements, or to adapt the population of the species to that level (cf Article 2).

To achieve this, Member States are required to preserve, maintain or re-establish a sufficient diversity and area of habitats for the capercaillie which should include primarily the following (cf Article 3):

- creation of protected areas;
- upkeep and management in accordance with the ecological needs of habitats both *inside* and *outside* protected area;
- re-establishment of destroyed habitats;
- creation of habitats.

Protecting the species

Member States should take the requisite measures to establish a general system of protection for the capercaillie throughout its natural range within Europe, and in particular to prohibit the following (Art 5):

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as this would have a significant negative effect on the birds;
- keeping the birds, the hunting and capture of which is prohibited

Member States must also make provisions to regulate the sale, transport for sale, keeping for sale and the offering for sale of live or dead birds and of any readily recognizable parts or derivatives of these birds (cf Article 6).

Exploitation (Articles 7& 8)

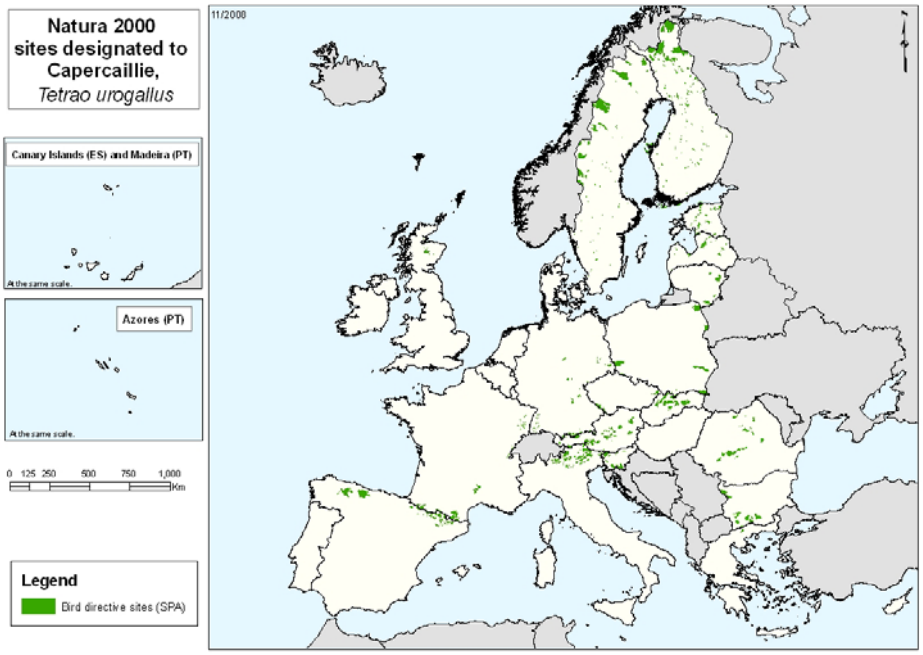
The capercaillie is listed under Annex II/2 of the Birds Directive, which means that the species may be hunted under national legislation in those Member States (Finland, Sweden, Latvia, UK, France, Germany, Austria, Italy and Romania) which have specifically indicated that hunting of capercaillie can be allowed on their territory. These Member States must ensure that the practice of hunting complies with the principle of wise use and that hunting is compatible with the measures taken according to Article 2 (cf above). They shall see in particular that capercaillie is not hunted during its period of reproduction or during their return from migration in late winter and spring.

In respect of the hunting of the species, Member States shall prohibit the use of all means, arrangements or methods used for the large-scale or non-selective capture or killing of birds or capable of causing the local disappearance of capercaillie or other bird species. In particular, the following methods shall be prohibited (Article 8):

- snares, limes, hooks, nets or traps;
- live birds which are blind or mutilated used as decoys;
- tape recorders;
- poisoned or anaesthetic bait;
- artificial light sources, mirrors, devices for illuminating targets etc;
- electrocuting devices or explosives;
- semi-automatic or automatic weapons.

Protecting core habitats for the species under Natura 2000

The capercaillie is listed in Annex I of the Birds Directive in view of its vulnerable conservation state. This means that, in addition to the general provisions referred to above, Member States must also classify the most suitable territories in number and size as Special Protection Areas under Natura 2000 to ensure the survival and reproduction of the species across its entire area of distribution within the EU (cf Article 4). As of November 2008, 671 SPAs have been designated in the EU-27 where the capercaillie is said to be present.



Managing Natura 2000 sites

Within these SPAs, Member States must take appropriate steps to avoid the deterioration of habitats of the capercaillie as well as its disturbance, in so far as such disturbance could be significant.

Measures must also be taken to manage, maintain or, if necessary, restore areas for the capercaillie both within SPAs and outside so that the objectives of the Directive are achieved (cf Art 3). The Birds Directive does not elaborate how this should be done as this is up to each Member State to decide but, in practice, management plans are very often developed for each SPA within Natura 2000.

Management plans are useful documents in that they:

- identify the conservation needs of the habitats and species present in that site so that it is clear to all what is being conserved and why;
- analyse the socio-economic and cultural context of the area and the interactions between different land uses and the species and habitats present;

- provide an open forum for debate amongst all interest groups and help build a consensus view on the long term management of the site;
- help find practical management solutions that are integrated into other land use practices.

Assessment and approval of plans and projects that may significantly affect Natura 2000 sites:

The EU Nature Directives support the principle of sustainable development. Their aim is to set the parameters by which the economic activities can take place whilst safeguarding Europe's biodiversity. Thus, any plans or projects that may affect the species and habitats for which the sites are designated must be first assessed to determine whether the project is likely to have a significant effect on the species and habitat types for which the site has been designated.

If the impact is not considered significant the project can go ahead. If the effect is expected to be significant then alternative less damaging options must be fully explored and selected. In exceptional cases, if no viable alternatives exist, projects with significant negative impact on Natura 2000 sites can still go ahead if they are considered to be of overriding public interest. In such cases, compensation measures will need to be taken in order to ensure that the ecological coherence of the Natura 2000 Network is not compromised (cf Articles 6 (3) & (4) of the Habitats Directive which apply to SPAs classified under the Birds Directive).

CAPERCAILLIE CONSERVATION THROUGH MEASURES UNDER CAP/RDPs

The obligations arising under the Birds and Habitats Directive can be integrated into rural development policy in the following manner:

Cross compliance

In the case of the **Birds Directive** one of the 19 SMRs concerns the requirements resulting from the following articles that must be respected by farmers, also on mixed farming and forestry holdings:

→ Article 3 (1) & (2)(b): preserve and maintain a sufficient diversity of habitats for wild birds; in particular introduce measures for their upkeep and management in accordance with the ecological needs of habitats inside and outside of protected zones;

→ Article 4 (1), (2), (4): special conservation measures in Natura 2000 sites and taking appropriate steps to avoid pollution or deterioration of these areas;

→ Article 5 (a), (b) & (d): obligations under the general system or protection for all wild birds, and in particular prohibitions of the deliberate killing or capture by any method, the deliberate destruction of, or damage to, their nests and eggs or removal of their nests and/or the deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant.

In the case of SPAs another SMR based on the **Habitats Directive**, must be respected:

- Article 6: within Natura 2000 sites take the necessary conservation measures to restore and maintain the species and habitat types for which the site is designated and prevent their deterioration, destruction or significant disturbance.

The exact requirements of the above mentioned SMRs vary between Member States and depend on the way the requirements of the Birds and Habitats Directives are translated into their laws and administrative measures (e.g. management plans for Natura 2000 sites) applicable to farmers, and consequently cross compliance.

Measures under Rural Development Programmes funded from EAFRD:

The following measures could be used to benefit capercaillie:

- **Natura 2000 payments** (Article 46 of EAFRD) - annual payments per hectare of forest to private forest owners or associations in order to compensate for costs incurred and income foregone resulting from the restrictions on the use of forests due to the implementation of Habitats and Birds Directives in the area concerned;

- **Forest-environment payments** (Article 47 of EAFRD) per hectare of forest to cover forest-environmental commitments going beyond the relevant mandatory requirements. This could include amongst others control of alien species, securing open areas in the forest and along wetlands, increasing the amount of dead wood left in the forest, and non-productive planting of tree species to secure a diverse forest.
- **Support for non-productive investments (**Article 49 of EAFRD) in forests: (a) linked to the achievement of commitments undertaken pursuant to forest-environment payments, or other environmental objectives; (b) which enhance the public amenity value of forest and wooded land of the area concerned.
- **Conservation of rural heritage** (Article 57)**:** for instance to cover the cost of drawing up management or species action plans for capercaillie in protected areas, undertaking habitat restoration measures, launching awareness campaigns on capercaillie conservation requirements amongst farmers.

In addition, the following could also be used:

- **Training and information** (Article 21): e.g. could help make forest-environment schemes more effective and train forest owners/managers and experts in the Advisory Services on conservation and management requirements linked to wildlife such as capercaillie;
- **Farm Advisory Services (FAS)** (Articles 24 and 25): to advise forest owners/managers on how to apply cross compliance rules, e.g. those set for the Habitats and Birds Directives that are beneficial, inter alia, for capercaillie:
- **LEADER** (Article 61): integration of capercaillie conservation into area-based local development strategies and enhancement of dialogue and collaboration between forest owners/managers, conservationists and other rural stakeholders in the area concerned.

EXAMPLES OF CAPERCAILLIE FRIENDLY MEASURES UNDER RDP

The following provide some examples of how different countries have introduced support for capercaillie friendly forestry practice through the Rural Development Regulations for 2000-2006 and 2007-2013. Further details are provided in the outputs of the Wildlife and Sustainable Farming Initiative:
http://circa.europa.eu/Public/irc/env/swfi/library?l=/species_reports&vm=detailed&sb=Title

FRANCE

During 2000-2006 it was possible within the framework of Rural Development Regulation 1257/99 and on the basis of Article 30 to grant one-off investments to improve the economic, ecological or social value of forest or to improve and rationalise the harvesting.

A specific grant scheme called "Natura 2000 forest agreements" was also set up and revised in December 2004 for Natura 2000 areas. This remains in place in the new RDP (2007-2013). Within the Natura 2000 forest agreements scheme, capercaillie is one of the key species targeted by the agreements where it occurs in the Natura 2000 areas. It includes at least six measures of relevance to capercaillie conservation:

(1) Creation and restoration of clearings in closed forest stands, in order to create environments favourable to maintenance and reproduction of habitats or species of Community interest;
(2) Clearing and thinning of stands for non-productive purposes;
(3) Additional investments to reduce the impact of forest service tracks and roads. This allows for closing roads and tracks after forestry activity, re-locating tracks to avoid reproduction areas, wetlands etc;
(4) Specific non-productive forestry works to increase stand heterogeneity to get a more uneven-aged forest community;
(5) Protection of reproduction habitat with fences to avoid human entry;
(6) Increasing the development of old stands.

For measure (5) it is important that fences are visible to the birds in order to avoid collisions. Fencing could be with wooden fence, or dense bushes could be used to create a semi-natural barrier.

For all of these measures, specific technical rules are defined at national level and more detailed rules are provided at regional level. Rates of support are also determined at the regional level. As an example, payments range from 42 € to 145 € (per tree) for the development of an old tree with a commitment of 30 years.

SWEDEN

Under the heading of non-productive investments regarding forests, the Swedish RDP 2007-2013 includes two measures for preserving and developing the biological diversity in forests. One of these measures deals with biodiversity in broad-leaved deciduous forest only, but the other measure in coniferous forests – and the one targeting the largest area of land – is of clear relevance to capercaillie conservation.

The overall objective of the measure is to preserve and develop biodiversity and cultural heritage values in Swedish forest land and thus contribute to fulfilling the national environmental quality objective "Sustainable Forests". The target is to include 65,000 ha of highly valuable forest land in terms of biodiversity and cultural values. Support is given to activities that strengthen the biodiversity and cultural heritage of forest land. The measure is based on a property-level approach, meaning that targeted management is directed to private forest owners who have forest estates with a high share of nature and cultural values. By concentrating support payments on properties with a large proportion of high-value stands, it is expected that the environmental benefits will be maximized.

Eligible forest owners must prepare a goal classification, meaning that forest management plans specify a long term approach to conservation management that strikes a balance between production and environment. Included are an inventory of forest assets and an assessment of the nature value of the different stands. After preparation of the goal classification, the forest owner will set up the management plan for those areas which are considered of particular value for biodiversity and cultural heritage. The management plan must be endorsed by a competent authority. Finally the activities set out in the management plan must be carried out. Support is available for manual and mechanical input that strengthens natural, cultural and social assets in forests. After inspection and verification by the competent authority, support is paid out for eligible costs up to a specified ceiling. Payments only compensate additional costs incurred and are based on actual costs including own work.

A maximum of € 8,3/ha is paid for the goal classification. Manual input such as work with a clearing saw or chain saw, horse driving or burning for nature conservancy purposes qualifies for support up to max. € 333/ha. A maximum of € 444/ha is granted for mechanical inputs such as work involving a harvester, a scooter or a tractor.

Management activities in stands with high nature, culture or social values can be similar to cleaning, thinning and cutting of selected trees. In order not to destroy the values, the activities must be carried out carefully, implying that they are more time-consuming than normal forest management activities. The cost of adapted cleaning is estimated to € 340/ha, or 30 % more than normal cleaning.. Also for machine work, the adapted management measures are more time-consuming than normal harvest, increasing the cost to an estimated € 755/ha but it is assumed that the forest owner can utilize about 20 % of the timber, thus the support level is at € 430/ha.

The total funding available for this measure is € 9.7 million, 53 % of which comes from national public financing and 47 % from the EU.