

GUIDELINES ON THE MANAGEMENT OF FARMLAND IN NATURA 2000

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EXECUTIVE SUMMARY

The importance of farmed habitats in Natura sites, the need for their management

The obligations of Member States regarding management and funding of Natura sites

Principles that should be followed in developing a management framework for farmed habitats in Natura sites

Key recommendations.

1. PURPOSE OF THIS GUIDANCE

1.1 What is this guidance for?

This guidance document has been prepared to help Administrations and key stakeholders dealing with the management of agriculture and nature conservation to address the management of farmland in Natura 2000 areas in a way that can contribute to improve the conservation status of the habitats and species sensitive to, or dependent on, agricultural land management.

These guidelines have been prepared through an active dialogue with relevant stakeholders (agricultural and environmental authorities of Member States, farmers' organisations, environmental NGOs) with the aim of promoting integrated management of farmland in Natura 2000 areas, by strengthening the partnership approach.

The document builds on existing good practice experiences in management of farmland in Natura 2000 sites (in terms of design, coordination and implementation) for maintaining habitats and species of EU interest through agriculture, and how these practices can be enhanced in the future to contribute to conservation management in Natura 2000. It also takes into account other relevant studies and initiatives.

1.2 Who is this guidance for?

This guidance is primarily addressed to administrations dealing with CAP (especially those designing Rural Development Programmes [RDPs] and supporting their implementation) and Natura 2000 (including those involved in the preparation of management plans), to help them in devising the measures needed for the management of agriculture in Natura 2000 and for improving cooperation with farmers.

Conservation authorities and Natura 2000 managers will find relevant information and guidance on the management of key agricultural habitats and species and on the use of the main instruments available to support their conservation.

Agriculture authorities and RDP managers will be able to better understand the need to support conservation measures and to maintain suitable practices in farmland that contribute to the conservation of Natura 2000 sites.

In addition, the guidance will be useful for farming organisations and land managers that may be involved in the management of farmland in Natura 2000 areas.

1.3 What can you find in this document?

Explain structure and content of the guidance

Ch 2 Farming and Natura 2000 explains...

Ch 3 Planning for Natura 2000 farmland explains ...

Ch 4 ...

Ch 5

Annexes:

- more detailed info about agricultural habitats, management measures,
- case studies...

2. Farming and Natura 2000

2.1 Introduction

Agriculture is an important activity in the Natura 2000 network. It has an influence on habitats and species that depend on or are associated with agricultural management and farming practices may thus contribute to the conservation of those habitats and species.

This chapter explains the importance of farming for biodiversity in general and more specifically for Natura 2000 habitats and species, and how agricultural management influences their conservation. It also makes clear that maintenance of some traditional extensive farming systems and their associated practices is key to nature conservation.

2.2 Agricultural landscapes and habitats: what is their importance for biodiversity?

The legacy of agricultural practices has created a rich diversity of landscapes and habitats in Europe, which are primarily a result of thousands of years of human modification of natural ecosystems.

The combination of climate and local abiotic factors, such as day length, soil conditions, topography and altitude, largely determines the type of agriculture that is practised in a region. Three broad classes of agricultural habitat can be distinguished according to their predominant types of vegetation and typically associated biodiversity:

- permanent grasslands and other forms of natural or semi-natural vegetation that are grazed by livestock;
- cultivated croplands, including temporary grasslands which are often converted from permanent grasslands; and
- permanent crops.

These classes can be further subdivided according to their degree of modification and intensity of management, because these factors have a profound impact on biodiversity. Such divisions could be numerous and it is difficult to define boundaries between them, but permanent grasslands¹, shrublands and other grazed habitats can be divided as follows:

- natural habitats that are extensively grazed, but not dependent on grazing for maintenance and not significantly changed by livestock grazing or other human activities;
- semi-natural habitats (i.e. vegetation that has not been planted and is dominated by native species, but that is the result of human activities, for example woodland clearance, grazing and burning, and associated species) that are:
 - pastures, which are dependent on livestock grazing for their maintenance; or
 - meadows, which are dependent on mowing (usually for hay) for their maintenance, although they may also be grazed at certain times of year.

¹ Defined ecologically as old or infrequently ploughed grasslands (typically at least five years old).

- improved permanent grasslands, which have been agriculturally improved through some form of physical intervention such as drainage, fertilisation or reseeded.

A field-scale typology is illustrated in Table 2.1, which includes 11 broad habitat types. The table also provides a summary of the key farming practices that shape these habitats and their associated biodiversity, and illustrates how the habitat types relate to agricultural systems more generally, using FADN² categories.

Table 2.2 summarises the importance of agriculture for some threatened habitats and species in the EU, and its overall biodiversity importance.

The agricultural habitats of highest biodiversity importance are natural and semi-natural habitats, including permanent grasslands, pastures and meadows subject to traditional low intensity management, but also some extensive arable systems can be of particular importance for some species.

Most cultivated and permanent croplands in Europe are currently intensively managed, but some extensive cereals (for example on poor soils, dry, saline or waterlogged areas, or in remote locations) and old traditionally managed orchards are notably richer in biodiversity. Such habitats can support species of Community interest. For example, many remaining areas of dry cereal steppe lands are designated as Natura 2000 sites in Spain and Portugal, as they support large proportions of some globally threatened birds, including Great Bustard (*Otis tarda*) and Lesser Kestrel (*Falco naumanni*) (Bota et al, 2005; Suárez et al, 1997; Tucker and Evans, 1997). From a biodiversity perspective therefore there are strong grounds for distinguishing extensively cultivated and extensive permanent crops from intensive systems.

Organic farming systems also differ significantly and consistently from conventional improved grasslands and especially from intensively cultivated arable and permanent crops, particularly in their avoidance of artificial fertilisers and very limited use of pesticides.

The conservation value of many farmland habitats and landscapes has been recognised in the **High Nature Value (HNV) farmland concept**, which has been widely adopted across Europe, by conservationists and policy makers (see box 1).

² The Farm Accountancy Data Network (FADN) is an instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy. The concept of the FADN was launched in 1965, when Council Regulation 79/65 established the legal basis for the organisation of the network. It consists of an annual survey carried out by the Member States of the European Union.

Box 1. High Nature Value (HNV) farmland

HNV farming systems have been defined as follows³:

“High Nature Value farmland comprises those areas in Europe where agriculture is a major (usually the dominant) land use and where that agriculture supports or is associated with either a high species and habitat diversity, or the presence of species of European, and/or national, and/or regional conservation concern, or both.”

Within this definition three types of HNV farmland are identified⁴:

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.

Although these definitions clearly overlap and remain subjective (eg in terms of thresholds for the proportions of semi-natural vegetation, species rarity and populations) they have helped clarify the HNV concept and led to further work that has attempted to map HNV farmland (Paracchini et al, 2008).

³ HNV farming systems were first described and defined in Baldock et al (1993), further developed under the IRENA initiative (EEA Report No. 6/2005), following work by Andersen et al (2003) and then redefined by Cooper et al (2007) for the purpose of developing a HNV Common Monitoring and Evaluation Framework (CMEF) Impact Indicator.

⁴ According to Andersen et al. (2003), subsequently modified by Paracchini *et al.* (2006).

Table 2.1: A broad field-scale typology of agricultural habitats according to the main links between farming practices and biodiversity in the EU

Source: (Poláková et al, 2011)

	Permanent grasslands and other grazed habitats					Crops					
Habitat types	Natural habitats	Semi-natural habitats		Improved grassland		Cultivated			Permanent		
		Pastures	Meadows	Organic	Conventional	Extensive	Organic	Intensive	Extensive	Organic	Intensive
Grazing / mowing	Low grazing levels due to low productivity	Habitat created by & dependent on moderate grazing	Habitat created by & dependent on moderate grazing and cutting for hay	High grazing densities and/or cutting for hay or silage	High grazing densities and/or cutting for hay or silage	Crop residues and fallow land are often grazed	Temporary grasslands usually cut for silage and grazed	Temporary grasslands usually cut for silage, often no grazing with animals	Traditional orchards, olive groves etc may be grazed		None
Cultivation & planting	Never	None or very old		Mostly old	Many are occasionally re-sown	Annual or frequent (< 5 years) for arable			Very infrequent; trees may be very old in traditional orchards and olive groves		Infrequent
Rotations and fallow periods	Na	Na	Na	None	Usually none	Used to maintain soil fertility & condition		Variable, often only break crops or repeat cropping	None		
Hydrology	Natural	Natural or minor improvements		Drained if necessary		Unmanaged	Drained if necessary	Drained and/or irrigated if necessary	Unmanaged	Sometimes irrigated	Often irrigated
Fertiliser	Never	Usually none	None or occasional organic manure or nutrient rich flooding	Regular use of organic manure	Regular fertiliser use and/or organic manure	Occasional use, dung from livestock	None, other than livestock manure	High annual NPK use	Occasional use	None, other than livestock manure	High amounts used annually
Pesticides	Never	Very rarely		Organic crop protection methods	Occasionally as needed	Occasional use	Organic crop protection methods	Used annually, primarily prophylactically	Occasional use	Organic crop protection methods sometimes	Used annually, primarily prophylactically

	Permanent grasslands and other grazed habitats					Crops					
Habitat types	Natural habitats	Semi-natural habitats		Improved grassland		Cultivated			Permanent		
		Pastures	Meadows	Organic	Conventional	Extensive	Organic	Intensive	Extensive	Organic	Intensive
				sometimes used			sometimes			used	
Typical agricultural products / use	Meat	Meat or low productivity dairy	Meat or low productivity dairy and hay	Meat or dairy and/or hay or silage		Cereals and fodder crops	Cereals, fodder crops, oil-seeds, cotton, tobacco, rice, vegetables & sugar beet			Fruit, citrus fruit, grapes, olives and nuts	
Resulting vegetation	Near natural species & communities	Species-rich, native species communities	Often highly species-rich, native species communities	Often dominated by non-native grasses; Organic: may have higher plant diversity		Predominantly crop, but with some adaptable plants; varied vegetation in fallow fields	Monocultures of cultivars at field-scale			Usually monocultures of cultivars at field-scale	
Examples of habitats	Montane grasslands, blanket bogs, tundra, semi-desert, salt-steppes, coastal marshes	Dry grasslands, shrublands, pastoral woodlands	Floodplain meadows and upland meadows	Typical permanent lowland grasslands		Dry cereal production ('psuedo-steppe') in Iberia & SE Europe	Some arable farmland	Typical intensive arable farmland	Old olive groves, vineyards and orchards in S Europe	Some permanent crops	Typical fruit and nut systems in most of Europe
Typical FADN farm types (all subtypes included unless indicated)	42. Specialist cattle-rearing and fattening 44 Sheep goats and other grazing livestock			4. Specialist grazing livestock 5. Specialist granivore 6. Mixed livestock		1. Specialist field crops 8. Mixed crops-livestock	1. Specialist field crops 2. Specialist horticulture 6. Mixed cropping 8. Mixed crops-livestock			3. Specialist permanent crops 6. Mixed cropping 8. Mixed crops-livestock	3. Specialist permanent crops 6. Mixed cropping

Table 2.2. Numbers of threatened habitats and species in agricultural habitats, and their overall biodiversity importance

Key: HD = Habitats Directive, BD = Birds Directive.

Source: Poláková et al (2011), citing: 1 Halada *et al* (2011); 2 adapted from Tucker and Evans (1997); 3 adapted from van Swaay *et al* (2006) using updated an annexes available from Butterfly Conservation Europe (<http://www.bc-europe.org/upload/Butterfly%20habitats%20-%20Appendix%201.pdf>); 4 (Temple and Cox, 2009a); 5 (Temple and Cox, 2009b).

Note: Habitat divisions for each taxa group reflect the habitat types distinguished in the available data.

Habitat types	Permanent grassland and other habitats grazed by livestock				Crops						
	Natural habitats	Semi-natural habitats		Improved grassland		Cultivated			Permanent		
		Pastures	Meadows	Organic	Conventional	Extensive	Organic	Intensive	Extensive	Organic	Intensive
HD Annex 1 habitats ^{*1}	63										
BD Annex 1 species ^{*2}	54				32			5			
European HD Annex II Butterflies ^{*3}	9	25	0	0	0	0	0	0	0	0	
European threatened amphibians ^{*4}	3	5	0		1	0		0	0		
European threatened reptiles ^{*5}	1	4	0		0	0		4	0		
Overall biodiversity importance	Very high, many species are restricted to such habitats	Very high, these habitats tend to be species-rich and declining; some species are restricted to such habitats and dependant on specific agricultural practices	Moderate, species diversity is much reduced compared to natural and semi-natural habitats, but some species of conservation importance use such habitats, sometimes in important numbers		High, such habitats are now rare and support some threatened species (especially birds)	Low, especially in intensive farmland dominated landscapes, but biodiversity levels can be enhanced by appropriate measures		Moderate - High, such habitats are declining and support some threatened species	Low, especially in intensive farmland dominated landscapes, but biodiversity levels can be enhanced by appropriate measures		

2.3 Why is farming important for Natura 2000 sites and for conservation of their habitats and species?

The terrestrial component of the Natura 2000 network currently includes over 26,000 sites and covers some 18% of the EU landmass. Agricultural practices have a particular influence on these sites as agro-ecosystems represent almost 40% of the surface area of Natura 2000 sites. A relatively large area of farmland, and in particular grassland and other semi-natural or mixed habitats, falls within the Natura 2000 network (Figures 2.1 and 2.2).

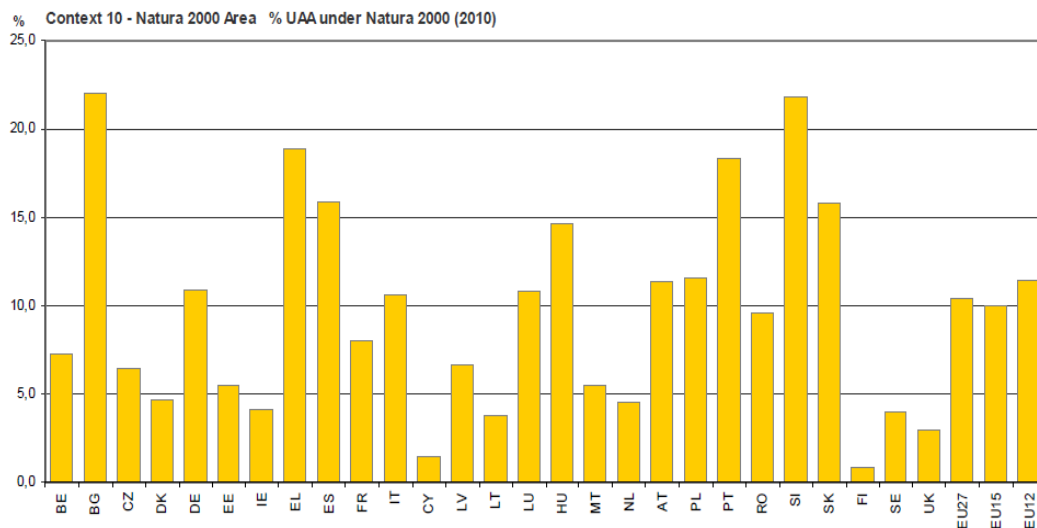


Figure 2.1. Percentage UUA under Natura 2000 (2010)

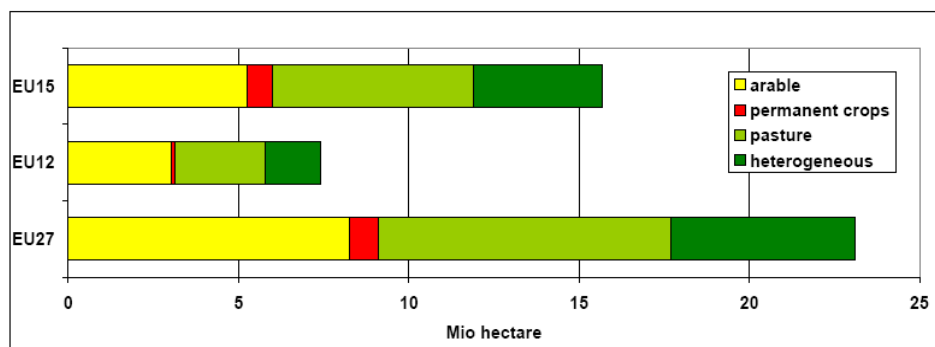


Figure 2.2. Area under agriculture within Natura 2000 sites

Source: Natura 2000 database (European Commission, DG Environment), CORINE Land Cover data 2000, own calculations (from Cooper et al. 2009).

Much of the agricultural area included in the Natura 2000 network can be considered as High Nature Value (HNV) farmland and may be threatened by abandonment of agricultural practices; a large proportion of Natura 2000 sites are therefore dependent on the continuation of suitable farming practices, which can provide mutual benefits for nature and farmers.

Suitable management measures must be taken in Natura 2000 sites to ensure the conservation of their habitats and species (see section 2.4 below); suitable management of

HNV farmland is also necessary outside Natura 2000 areas to ensure the conservation of a sufficient area of habitats for connectivity and long-term viability of species populations.

Traditional agricultural landscapes and the species that are found within them can also help promote tourism activities and can therefore provide important direct and indirect economic support for rural communities.

2.4 What are the aims of the Natura 2000 network and how must the sites be managed?

The aim of the Natura 2000 network is to ensure that the species and habitat types that are protected in the European Union by the two nature directives (Habitats and Birds Directives) are maintained or restored to a *favourable conservation status* across their natural range.

Under the Habitats Directive, core sites need to be protected for 231 habitat types listed in Annex I and 911 species listed in Annex II⁵. Member States must designate those sites as Special Areas of Conservation (SAC) and establish the necessary conservation measures for the habitats and species occurring within them, taking into account their ecological requirements. At this stage practical management solutions that help integrate these conservation needs into other land use activities should be explored, taking socio-economic issues into account where possible.

According to the Birds Directive, Member States must classify as Special Protection Areas (SPA) the most suitable territories for the conservation of the 195 species and subspecies of birds⁶ listed in Annex I of the Directive⁷, and shall put in place special conservation measures to ensure the survival and reproduction of those species in their area of distribution. Similar measures must be taken up for regularly occurring migratory species⁸, bearing in mind the need to protect their breeding, moulting and wintering areas and staging posts along their migration routes, eg wetlands of international importance. Since the Habitat Directive came into force, SPAs are included in the Natura 2000 Network.

▪ *Setting conservation objectives*⁹

The measures put in place under the nature conservation Directives aim to ensure that the species and habitat types covered achieve '*favourable conservation status*'¹⁰ and that their long-term survival is secured across their entire natural range within the EU.

⁵ The Habitats Directive identifies a subset of 72 Annex I habitats as being priority natural habitat types because they are in danger of disappearance and because the Community has a particular responsibility for them in view of the proportion of their natural range which falls within the EU. Similarly, a subset of Annex II species are identified as priority species because the Community has particular responsibility for them.

⁶ Although the Birds Directive does not identify priority bird species, the Ornithologists Committee (which advises the Commission on the implementation of the Directive) has agreed a list of 51 species and subspecies that are considered as priority for the purpose of LIFE Nature funding and the development of action plans. These priority species include all globally threatened species that regularly occur in the EU, as well as some other species that are particularly threatened as a result of their rarity and/or rapidly declining populations.

⁷ Article 4(1)

⁸ Article 4(2)

⁹ See document on Conservation Objectives agreed at the Habitats Committee Meeting in May 2012.

In principle, site level conservation objectives should be set for all species and habitat types of Community interest of the Habitats Directive and bird species of the Annex I of the Birds Directive that are present on a Natura 2000 site, as well as for regularly occurring migratory species. Site level conservation objectives should be based on the ecological requirements of the habitat types and species. They should reflect the importance of the site for the maintenance or restoration, at a favourable conservation status, of the habitat types and species present on the site and for the coherence of the Natura 2000 Network. Conservation objectives should also address the threats of degradation or destruction to which the habitats and species on the site are exposed.

Site level conservation objectives are crucial for the definition and establishment of conservation measures. The conservation objectives can be specified within the site designation decisions or can be further elaborated in the context of site management plans or other instruments.

▪ *Establishing the necessary conservation measures*

The Habitats Directive (Article 6.1) states that *"for special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites."*

Analogous provisions apply to SPAs, as *"Member States have to ensure that the species mentioned in Annex I and regularly occurring migratory Bird species are subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution"*¹¹. This means that SPAs must be subject to a similar protection regime to SACs (are boundaries, reasons for designation, conservation objectives and measures).

According to the Provisions of Article 6.1 of the Habitats Directive, the necessary conservation measures can involve:

¹⁰ Conservation status for species is considered favourable when:

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

Conservation status for natural habitat types is taken as favourable when:

- *its natural range and the areas it covers within that range are stable or increasing; and*
- *the specific structure and function which are necessary for its long-term maintenance are present and are likely to continue to exist for the foreseeable future; and*
- *the conservation status of typical species that live in these habitat types is favourable.*

¹¹ The ECJ case-law on these provisions is already quite extensive. For example in case C-293/07 the Court clarified the need for a coherent, specific and integrated legal regime capable of ensuring viable management and effective protection of SPAs.

- *“appropriate management plans specifically designed for the sites or integrated into other development plans, and*
- *appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites”.*

The necessary conservation measures in a Natura 2000 site must be related to the site level conservation objectives pursued and must take into account the ecological requirements of the habitats and species for which the site is designated. Ecological requirements involve all the abiotic and biotic factors necessary to ensure the favourable conservation status of the habitat types and species. These requirements can vary among species, but also between sites for the same species.

The Habitats Directive requires the adoption of the necessary conservation measures for all SACs, although article 6(1) provides some flexibility in relation to the possible instruments that can be used to design and implement such measures. The choice is left to the Member States, in conformity with the principle of subsidiarity. Management Plans for Natura 2000 sites are widely used in the EU countries, but other measures are also successfully applied and in many countries different options are used in combination for management of Natura 2000 sites. *(A recent document has been prepared by the Commission in this regard → provide reference).*

Furthermore, conservation plans for certain species or habitats occurring in only a few Natura 2000 sites are used in some Member States. These can propose and define species- or habitat-specific conservation measures to be implemented both in designated Natura 2000 sites and in other locations.

A variety of measures may be considered appropriate to achieve the aim of the Habitats Directive, including statutory, administrative and contractual measures. In principle, these involve active management, but in some exceptional cases measures may require no action (passive management). Furthermore, these measures may not necessarily be new, as existing measures can also contribute to achieving the conservation objectives.

- *Statutory measures* usually follow a pattern laid down in procedural law and can set specific requirements in relation to activities that can be allowed, restricted or forbidden in the site.
- *Administrative measures* can set relevant provisions in relation to the implementation of conservation measures or the authorisation of other activities in the site.
- *Contractual measures* involve setting contracts or agreements usually among managing authorities and land owners or users in the site.

Among measures involving active management, agri-environmental or sylvi-environmental measures are a good example of consideration of socioeconomic requirements when establishing agreements that benefit Natura 2000 sites. Agri-environmental agreements with farmers within the Rural Development Regulation are used as a contractual measure

aiming at maintaining a favourable conservation status of certain habitat types (eg. meadows, pastures) and species.

The complexity of the necessary conservation measures may also require other kinds of contracts and agreements and other types of specific measures, including voluntary conservation measures that do not involve any payment or incentive.

2.5 What habitats and species are linked to agricultural practices?

A number of studies have identified the habitats and species of Community interest that are linked to agricultural practices, which should be the focus of agriculture related conservation measures. These are hereafter referred to in this report as “key agricultural habitats” and “key agricultural species”.

2.5.1 Key agricultural habitats

Based on previous work carried out for the preparation of the EU 2010 Biodiversity Baseline (EEA, 2010)¹², 52 habitats included in Annex I of the Habitats Directive are considered to be key agricultural habitats in this report (see Table 2.3) because they are dependent on or associated with extensive agricultural practices. Nearly half of these (25) are considered to be fully dependent on agricultural practices and for the vast majority a high percentage of their area is considered to be in unfavourable conservation status, according to the latest assessment made by the EU Member States¹³. This clearly shows the importance of these habitats and the need for measures to be developed and put in place for their conservation.

Many of these agricultural habitats are grasslands, which correspond to “permanent pastures”, as defined and more widely used by the agriculture sector (eg. under the CAP). Other habitats associated with agricultural management include meadows that are managed by mowing and some types of dunes and shrublands that may be managed by grazing.

More detailed information about these habitat types is included in [Annex 1](#).

Table 2.3 - Key agricultural habitats of Community importance

Key/sources: *Agri dep* = dependency on agriculture (from Halada et al (2011): 3 = Fully dependent on agricultural management, 2 = Partially dependent, 1 = partially dependent but only for some sub-types or over part of the distribution. *Priority* = Priority Status according to Habitats Directive Annex I. % *N2K* = % of distribution spatially overlapping with N2K sites based on 2006 Article 17 reporting data (ETC/BD 2008)*. % *UFC* = % of habitat area* in Unfavourable Condition (for which condition was reported) based on 2006 Article 17 reporting data (ETC/BD 2008). * Excludes Romania and Bulgaria.

¹² 63 agricultural related habitats are listed in Appendix II of the EU 2010 Biodiversity Baseline report (EEA, 2010). More detailed results, including the classification of dependency of each habitat on agricultural management, are published in Halada et al (2011).

¹³ Under Article 17 of the Habitats Directive provisions.

Code	Habitat (ORDER)	Agri dep	Priority	% N2K	% UFC
6530	Fennoscandian wooded meadows	3	1	54%	100%
6250	Pannonic loess steppic grasslands	3	1	39%	100%
6260	Pannonic sand steppes	3	1	33%	100%
6270	Fennoscandian lowland species-rich dry to mesic grasslands	3	1	22%	100%
6230	Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and sub-mountain areas, in continental Europe)	3	1	37%	81%
1630	Boreal Baltic coastal meadows	2	1	71%	100%
2250	Coastal dunes with <i>Juniperus</i> spp.	2	1	67%	100%
6240	Sub-pannonic steppic grassland	2	1	67%	100%
6280	Nordic alvar and precambrian calcareous flatrocks	3	1	54%	53%
1340	Inland salt meadows	2	1	51%	100%
6120	Xeric sand calcareous grasslands	2	1	18%	100%
6220	Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	3	1	60%	15%
2310	Dry sandy heaths with <i>Calluna</i> and <i>Genista</i>	3		68%	100%
6440	Alluvial meadows of river valleys of the <i>Cnidion dubii</i>	3		52%	100%
6520	Mountain hay meadows	3		51%	100%
1530	Pannonic salt steppes and salt marshes	1	1	55%	100%
2320	Dry sandy heaths with <i>Calluna</i> and <i>Empetrum nigrum</i>	3		43%	100%
2330	Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands	3		43%	100%
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)	1	1	57%	95%
2140	Decalcified fixed dunes with <i>Empetrum nigrum</i>	1	1	58%	93%
4020	Temperate Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i>	1	1	41%	100%
6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	3		46%	95%
8240	Limestone pavements	2	1	47%	43%
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	1	1	41%	99%
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	3		35%	98%
2340	Pannonic inland dunes	1	1	29%	100%
6450	Northern boreal alluvial meadows	3		18%	100%
9070	Fennoscandian wooded pastures	3		19%	100%
5330	Thermo-Mediterranean and pre-desert scrub	3		69%	68%
6180	Macaronesian mesophile grasslands	2		86%	100%
6190	Rupicolous pannonic grasslands (<i>Stipo-Festucetalia pallentis</i>)	3		47%	63%
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)	3		49%	63%
6110	Rupicolous calcareous or basophilic grasslands of the Alysso-Sedion albi	1	1	57%	56%
7210	Calcareous fens with <i>Cladium mariscus</i> and species of the Caricon davallianae	1	1	26%	72%
4040	Dry Atlantic coastal heaths with <i>Erica vagans</i>	1	1	33%	63%
2190	Humid dune slacks	2		51%	98%
7230	Alkaline fens	2		43%	97%
6140	Siliceous Pyrenean <i>Festuca eskia</i> grasslands	2		90%	72%
4060	Alpine and Boreal heaths	3		73%	23%
5120	Mountain <i>Cytisus purgans</i> formations	3		73%	0%
6420	Mediterranean tall humid herb grasslands of the Molinio-Holoschoenion)	2		65%	54%
5210	Arborescent matorral with <i>Juniperus</i> spp.	3		65%	0%
6310	Dehesas with evergreen <i>Quercus</i> spp.	3		65%	0%
6170	Alpine and subalpine calcareous grasslands	2		64%	38%
5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	2		30%	50%

Code	Habitat (ORDER)	Agri dep	Priority	% N2K	% UFC
4090	Endemic oro-Mediterranean heaths with gorse	2		62%	24%
5420	<i>Sarcopoterium spinosum</i> phryganas	2		85%	0%
5430	Endemic phryganas of the Euphorbio-Verbascion	2		79%	0%
6150	Siliceous alpine and boreal grasslands	2		58%	10%
21A0	Machairs	3	1	?	100%
6160	Oro-Iberian <i>Festuca indigesta</i> grasslands	2		68%	?
62A0	Eastern sub-Mediterranean dry grasslands (<i>Scorzoneralia villosae</i>)	3		?	91%

2.5.2 Key agricultural species

The EU Biodiversity Baseline report (EEA, 2010) identified 210 species of Community interest from Annex II of the Habitats Directive that are associated with¹⁴ agri-ecosystems and grassland ecosystems¹⁵. These species are listed in Annex 1, and summarised here in Table 2.4.

Table 2.4 - Numbers of key agricultural species from Annex II of the Habitats Directive, their priority status and habitat use.

Group	Species listed on Annex II	All key agricultural species	Priority key agricultural species	Species with a Favourable Status	Habitat use by key agricultural species	
					Grass	Agriculture
Plants	587	115	38	24	112	8
Invertebrates	136	51	1	6	48	9
Amphibians	25	5	3	0	3	2
Reptiles	24	8	2	0	8	0
Mammals	54	22	9	1	21	6
Total	911	201	53	31	192	25

¹⁴ The EEA's explanatory notes state that the nature of the link between species and their habitats are expressed in three categories:

- preferred habitat: main habitat of the species, species uses usually this habitat for its life or main part of population is linked to this habitat type
- suitable habitat: habitat in which species regularly occurs, but it is not preferred habitat or preferred habitat is not possible to determine (for species living regularly in several habitat types)
- occasional habitat: species lives sometimes in this habitat type, but only marginally or small part of the species population uses this habitat.

¹⁵ Agro-ecosystems comprise the following CORINE Land Cover (CLC) classes:

- Regularly cultivated land: this includes non-irrigated arable land (CLC class 211), permanently irrigated land (212), rice-fields (213), vineyards (221), fruit trees and berry plantations (222), olive groves (223), pastures (231) and annual crops associated with permanent crops (241).
- Mixed cultivated land: complex cultivation patterns (242), agricultural area with significant areas of natural vegetation (243) and agro-forestry areas (244).
- Semi-natural areas with possible extensive agriculture practices: natural grasslands (321), moors and heathland (322), sclerophyllous vegetation (323).

Grasslands include CLC classes pastures (231) and natural grasslands (321). Heaths and scrubland is treated separately and comprise CLC classes moors and heathlands (322), sclerophyllous vegetation (323) and transitional wood shrub.

In total, 201 Annex II species are considered to be key agricultural species, of which just over half (115) are plants. According to the Habitats Directive, 53 are priority species and the majority of these are plants. A sizeable proportion of the key agricultural species (51) are invertebrates, although only one is a priority species. Mammals are not a particularly species-rich group in Europe and only 54 are listed in Annex II of the Habitats Directive (of which 18 are priority species). It is therefore noteworthy that 22 mammals are key agricultural species and nearly half of these (9) are priority species.

The conservation status of 25% and 28% of key agricultural species is unfavourable-bad and unfavourable-inadequate, respectively, while 17% are in favourable condition, and for 30% conservation status is unknown¹⁶. These findings reinforce the conclusion that conservation measures for farmland are needed to ensure the aims of the Habitats Directive are met. Such measures are especially important in grassland habitats, with which the majority of key agricultural species are associated.

Key agricultural bird species are defined as those listed in Annex I of the Birds Directive that have more than 10% of their European population in one or more agricultural habitat types (Tucker & Evans, 1997). These are listed in [Annex 1](#). The numbers of species using each habitat, priority species, dispersed species and species with an unfavourable status are provided in Table 2.5.

In total, 62 of the 195 birds listed in Annex I of the Birds Directive are considered to be key agricultural species, of which 55 were judged to have an unfavourable conservation status in the EU in 2004 (Birdlife International, 2004). This very high proportion of species with an unfavourable status clearly shows the importance of implementing conservation measures for agricultural bird species. Furthermore, according to the Ornithological Committee, 20 of the 62 key agricultural species are priority species, and therefore in need of special measures, such as species actions plans.

Table 2-5 - Total key agricultural bird species for each habitat type, priority, dispersal and status category

	All	Moor	Med	AIG	SG	MG	WG	PC	PW
Total key agricultural species	62	3	21	32	32	6	13	5	12
Habitat use									
▪ 10-75% of population	43	0	11	22	21	5	10	5	11
▪ >75% of population	36	3	10	10	11	1	3	0	1
Priority species	20	0	4	9	10	2	6	0	2
Dispersed species	32	3	15	21	20	2	5	4	8
Unfavourable status	55	3	19	28	27	5	12	5	10

¹⁶ It is important to note that the status data are only available for the EU-25, because Bulgaria and Romania do not need to provide Article 17 reports until 2013. Therefore the EU status of key agricultural species that occur in these countries will be uncertain to some extent. Most importantly, those species that only occur in Bulgaria and Romania (8% of key agricultural species) currently have a completely unknown EU conservation status.

The findings indicate that grassland habitats are particularly important for key agricultural birds, as was the case with key agricultural species listed in Annex II of the Habitats Directive. Steppe grasslands are especially important as they are relatively restricted in the EU yet still hold significant populations of 32 key agricultural bird species. Semi-natural Mediterranean shrublands and wet grasslands are also particularly important.

The high number of species associated with arable and improved grasslands reflects the broad extent and varied nature of this habitat type, eg it includes some low intensity cereal systems (ie pseudo-steppe) that are of high importance for a number of Annex I species (Bota et al, 2005). It also shows that typical agricultural habitats are also of importance for a range of widespread generalist bird species that are listed on Annex I, many of which are relatively dispersed. Measures to improve the conservation status of such species will therefore need to be extended beyond Natura 2000 sites to the wider environment.

As with the key agricultural habitats, a large proportion of key agricultural species are now dependent on the continuation of extensive traditional farming practices for their survival in the EU. Of the 263 key agricultural species analysed, 88% are primarily associated with natural or semi-natural grassland habitats. Many of these are also found within agricultural landscapes and 11% of species are *principally* found within these agricultural areas. Nearly all species (246) are principally associated with grassland, 17 with extensive agricultural crop land, and 25 require both types of agricultural system.

2.6 What are the main pressures and threats to habitats and species dependent on agriculture?

The key habitats and species dependent on agriculture are under threat – 76% of the habitats and 70% of the species have an unfavourable conservation status. An assessment of the main threats related to agriculture has been carried out and is described in detail in the background report 2 that has been prepared for the development of this guidance document. Some summary results are presented in this section. The assessment is based on the reporting by Member States on the conservation status of habitats and species included in the Habitats Directive in 2007¹⁷, as well as on scientific literature and expert opinion.

The results from MS reporting indicate that some 52% of assessments listed abandonment of pastoral systems as a cause of unfavourable status, with coastal meadows, pastoral grasslands and other grasslands being most affected. This is not surprising given that most of the key agricultural habitats were created by a long history of extensive land management and remain partially or wholly dependent on such practices for their continued existence. Abandonment of traditional land management often results in a loss of

¹⁷ As part of the monitoring and reporting requirements under Article 17 of the Habitats Directive¹⁷, Member States have reported on the extent and status of each Natura 2000 habitat type and species within their territory in 2007. Member States have also identified the causes of unfavourable conservation status for each habitat and species, using a standard list of threat codes. This information therefore provides an opportunity to carry out a relatively objective and comprehensive assessment of the importance of agriculture-related threats to agricultural habitats and species of Community interest.

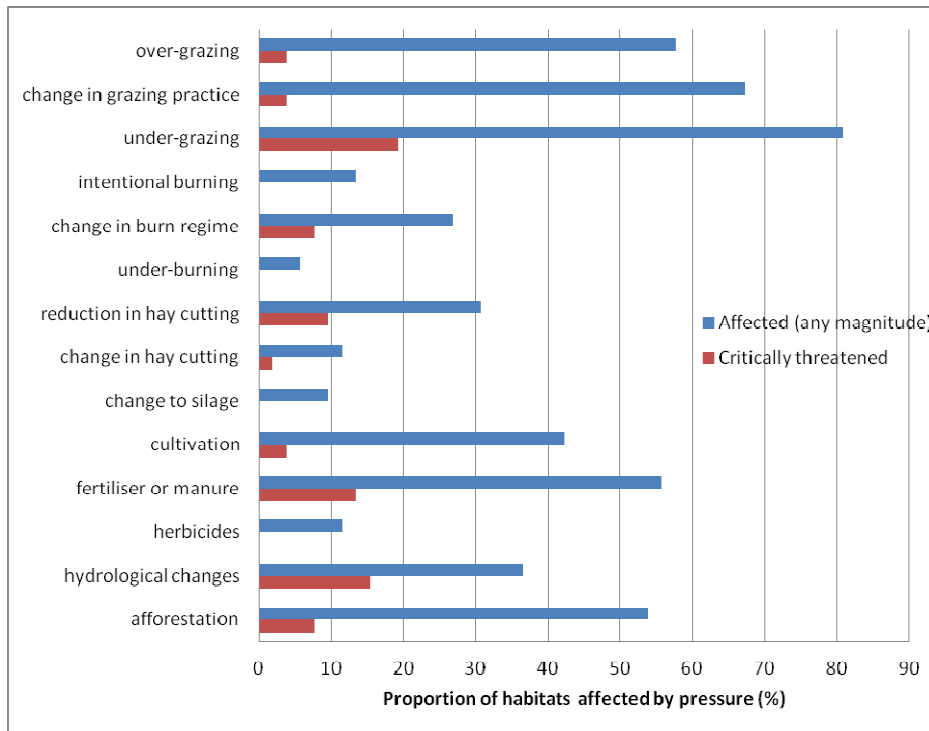
characteristic habitat structure and species composition and therefore constitutes a major threat to the conservation status of many Natura 2000 habitats.

Other threats that were frequently noted in the assessments included general grazing related impacts, modification of cultivation practices, fertilisation and cultivation.

A more detailed assessment of agricultural practices that affect key agricultural habitats was carried out on the basis of published literature and expert opinion. Detailed assessments of pressures were also carried out for the key agricultural species. The results are shown in Figure 2.3 and Figure 2.4.

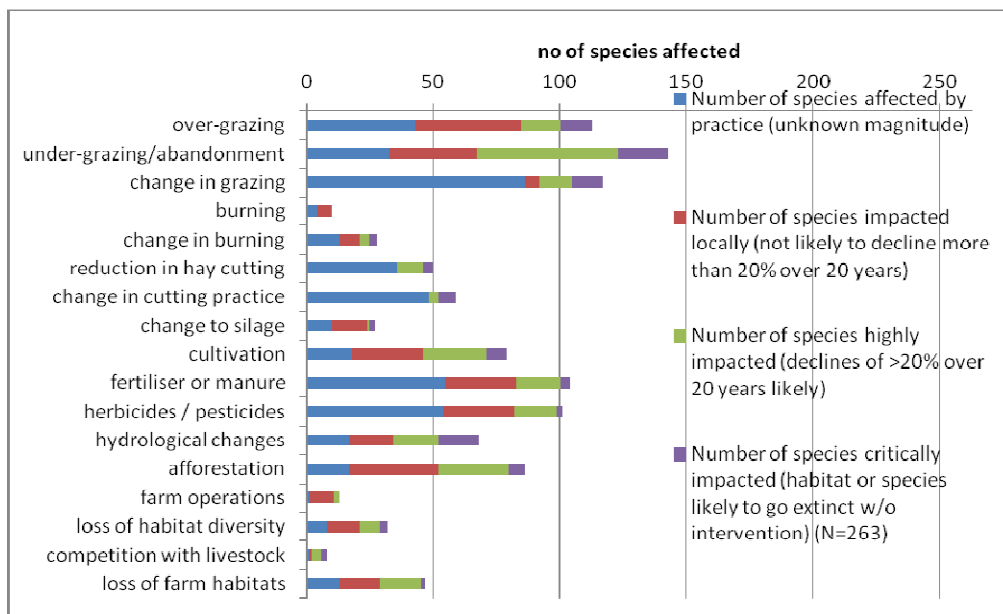
As would be expected, the major pressures on key agricultural species largely mirror those on the habitats in which they are found. Pressures related to grazing or mowing management comprise the most significant pressure class, followed by fertilisation, cultivation, afforestation and hydrological changes. Over half of the species are affected by under-grazing and/or over-grazing, whilst other changes to grazing practices, such as a change in stock type or lack of shepherding, is affecting at least 32% of the species analysed.

Figure 2.3 - Proportion of the 52 agricultural habitats affected by each pressure, and proportion of critical threats



Note: in the above figure, some categories have been combined: “change in grazing practice” includes changes in timing and stock type, use of supplementary feed and lack of shepherding. “Change in hay cutting practice” includes changes in timing of cutting, mechanisation and other unspecified changes in the practice. “Fertiliser or manure” covers both farmyard manure and artificial fertilisers

Figure 2.4 - Number of key agricultural species affected by each pressure and the degree of the threat



Note: in the above figure, some categories have been combined: “change in grazing practice” includes changes in timing and stock type, use of supplementary feed and lack of shepherding. “Change in hay cutting practice” includes changes in timing of cutting, mechanisation, and other unspecified changes in the practice. “Fertiliser or manure” covers both farmyard manure and artificial fertilisers.

A summary overview of the main pressures and threats affecting Natura 2000 habitats and species is provided in the following text. More details about the habitat types and species affected by these pressures can be found in [Background Report 2](#).

2.6.1 Abandonment of extensive farming practices – lack of grazing, hay cutting

The abandonment of extensive traditional livestock farming practices is the most important pressure on key agricultural habitats. Under-grazing was found to affect two-thirds of the analysed habitats, with nine of these critically threatened owing to the complete cessation of this management. Under-grazing, including abandonment, is also a significant factor affecting 60% of the species across all taxa groups. We found evidence for a critical threat from under-grazing to 9% of species. The decline or abandonment of hay cutting practices is also an important pressure; all 11 meadow habitats are affected by this change, and there was evidence of this posing a critical threat to five habitats.

Cessation of mowing for just a few years reduces hay meadow plant species richness (Baur et al, 2006; Dover et al, 2011). Abandoned pastures may initially show an increase in species of conservation importance, but lose overall species richness, particularly rosette-forming and spring-flowering species (Vassilev et al, 2011). If abandoned for extended periods, habitats will often undergo succession to woody shrub communities and forest. Scrub and heath habitats are also dependent on low intensity grazing to prevent succession (Calaciura and Spinelli, 2008a) and to maintain species diversity (Papanikolaou et al, 2011).

2.6.1 Lack of shepherding

The decline in shepherded grazing over recent decades has had negative consequences for large areas of semi-natural grazed habitats, leading to scrub encroachment but also over-grazing in some areas (García-González, 2008; Rochon et al, 2009). Consequently, the most widespread pressure for key agricultural species is abandonment of extensive pastoralist grazing systems and scrub encroachment on grasslands. The limited availability and high cost of skilled shepherds is a widespread problem throughout common grazing land areas in many regions of South and Eastern Europe (García-González, 2008; Pardini and Nori, 2011).

2.6.2 Lack of controlled burning management – under-burning, over-burning and wildfire damage

Many scrub and heath habitat types were traditionally managed by controlled burning to promote new vegetation growth and to halt succession to forest. A lack of appropriate management using controlled burning affects 25 habitats, predominantly heath and scrub. When management by active burning is abandoned, with the concurrent abandonment of grazing, habitats become dominated by a few species and lose biodiversity. It is likely that the use of controlled burning for heathland management will continue to decline (Reed et al, 2009). The increasing dominance of shrubby species and the accumulation of litter often lead to uncontrolled wildfires due to the availability of combustible woody biomass. Such intense burning can spread over very large areas, resulting in significant soil damage, including a loss of peat and humus layers and increased run-off and erosion, and may have long-term ecosystem impacts (Poláková et al, 2011).

2.6.3 Intensification of farming practices, over-grazing and high stocking levels, supplementary feeding

In agriculturally productive areas, habitats are often affected by the intensification of agricultural practices. Over half of the habitats and species analysed are affected by over-intensive grazing in some parts of their distribution. The impact of over-grazing on marginal grasslands has decreased since the CAP direct payments have been decoupled from livestock numbers (eg in the UK (UK NEA, 2011)). However, over-grazing is still happening in some areas due to the lack of shepherding, changes in livestock type, and lack of other livestock control systems such as rotational grazing.

Supplementary feeding of livestock also allows increases in livestock densities and changes the seasonality of grazing, increasing grazing pressure. Furthermore, unless feeders are regularly moved, the concentration of livestock around feeders can cause high levels of localised soil erosion and eutrophication, and under-grazing of vegetation that is far away from them.

2.6.4 Changes in mowing practices and mechanisation

The mechanisation and intensification of grass cutting has large negative impacts on grassland plants, animals and communities. Traditional hay harvesting used to create a mosaic of differently mown patches because of the small field parcel sizes, manual harvesting, and local demand and supply. Modern mechanised hay harvesting generally removes grass over large land areas simultaneously, which results in the instantaneous and complete destruction of habitats for invertebrates and birds and also synchronises sward regrowth across the whole area, reducing habitat heterogeneity and affecting those species that require patches of bare ground or short swards (Cizek et al, 2012). Modern farm machinery also directly kills most small animals that cannot get away in time, such as grasshoppers, bees, amphibians and some late breeding birds (Humbert et al, 2009).

2.6.5 Fertilisation

Most semi-natural grasslands are nutrient poor and are extremely sensitive to fertilisation. The use of fertiliser has profound impacts on plant communities, typically reducing species diversity and increasing vegetation height and density (Cop et al, 2009; Gibson, 2009). Half of the habitats under study are affected by the introduction or increased use of fertilisers or manure. Most of the Natura 2000 habitat types are also extremely sensitive to liming, which changes the soil pH, and therefore changes the nutrient balance of the soil.

Most Annex I dry grassland habitat types cannot tolerate any fertilisation, and both nitrogen and phosphorus are important (Ceulemans et al, 2011, 2012). Several key plants dependent on grazed habitats decline with increasing fertilisation due to the expansion of more dominant species that are better able to exploit the enhanced availability of nutrients (Firbank et al, 2008). Many invertebrate species associated with low-nutrient habitats are impacted detrimentally by this change in the plant communities that results in the loss of their specific adult and larval food plants (Orbicon, Écosphère, ATECMA, Ecosystems LTD, 2009).

Many hay meadows receive some farmyard manure to offset the losses of nutrients through hay removal and maintain productivity, and this is usually necessary to maintain the hay meadow plant community. However, applications of liquid slurry or artificial fertilisers, combined with frequent cutting for silage production, lead to the dominance of grasses and cause significant changes in species composition, destroying the habitat value (Stoate et al, 2009; Zechmeister et al, 2003).

2.6.6 Herbicides and pesticides

The use of herbicides and/or pesticides affects at least 35% of the species investigated in some way, although this is not a large-scale problem. For plants, this is through the direct impact of the agrochemicals, but also due to the loss of species providing pollinator/pest control functions (Geiger et al, 2010; Haughton et al, 2001). In the case of many of the reptile, amphibian, bird and mammal species, the impact is generally indirect and due to the decline in plant or invertebrate species used as food sources (Campbell et al, 1997; IUCN, 2011; Morris et al, 2005). However, agrochemicals can also directly impact the health of reptiles and amphibians through pollution of watercourses and by increasing their vulnerability to parasites and disease (e.g. Christin et al, 2009). The increase in use of avermectins against parasites of livestock is negatively affecting invertebrates in dung, and the birds and bats that feed on them (Vickery et al, 2001). Anticoagulant rodenticides used to control vole populations are poisonous to both grain-eaters and the raptors that eat the voles, and are responsible for significant numbers of deaths of Natura 2000 species (Lemus et al, 2011; Sánchez-Barbudo et al, 2012).

2.6.7 Intensification of grassland use or cultivation and conversion to arable

The intensification of grassland use through fertilisation, reseeding and drainage to enable silage production has very negative effects on the habitat (Buckingham et al, 2011). Cultivation or agricultural improvement of grassland habitats affects 40% of the habitats and 36% of the species from the Habitats Directive considered in this assessment. These are mostly plants and invertebrate species associated with natural or extensively managed grasslands, such as the Large Blue Butterfly (*Maculinea arion*) (Orbicon, Écosphère, ATECMA, Ecosystems LTD, 2009). Around 30% of bird species are affected by this conversion of grassland habitats.

2.6.8 Changes in arable farmland

The 17 species principally associated with extensive cereal systems are particularly affected by either abandonment or the intensification of management. For example, the Lesser Kestrel (*Falco naumanni*), Great Bustard (*Otis tarda*) and Little Bustard (*Tetrax tetrax*) are dependent on low-intensity cereal growing rotated and mixed with fallow and sheep grazing in Spain (Catry et al, 2011; SEO & Birdlife International, 2011). Other species affected by intensification on Iberian cereal steppes include Tawny Pipit (*Anthus campestris*), Calandra Lark (*Melanocorypha calandra*), Eurasian Golden Plover (*Pluvialis apricaria*), and White Stork (*Ciconia ciconia*) (Delgado and Moreira, 2000). Plants have been especially impacted by changes to traditional arable farming practices. For example, *Bromus grossus*, *Centaurea lactiflora*, *Ononis hackelii*, *Linaria ricardoii*, *Santolina semidentata* and *Notothyllas orbicularis* occur as weeds in traditional cereal crops, but improved seed controls and change in

agricultural practices (more intensive soil cultivation, lack of winter stubble period, herbicides, and fertilisation) have led to drastic declines in their populations (BfN, 2011; ICNB, 2006).

2.6.9 Loss of habitat features in agricultural landscapes

Many species are particularly dependent on farm boundary habitats (hedges, stone walls, ditches etc.) or other habitat features associated with farmland (ponds, buildings, etc.). Threatened reptiles (eg *Vipera xanthine*, *Elaphe situla*) live in traditionally cultivated land, dry stone walls and terraces and hedgerows, and are affected by habitat loss due to intensification of agricultural practices and loss of traditional farmland (IUCN, 2011; Temple and Cox, 2009b).

2.6.10 Loss of habitat diversity

Some species are particularly dependent on a mosaic of diverse habitats within their population range (Batáry et al, 2007a; Batáry et al, 2007b). For example, all known populations of the Danube Clouded Yellow butterfly (*Colias myrmidone*) inhabit, or have inhabited, very diverse landscapes that include pastures, hay meadows, arable land, fallow land, scrubland, open woodland and forest (European Commission, 2010a). The species has two annual generations that have partly contrasting needs, and these cannot be provided for under just one land-use on one plot. A diverse and dynamic land-use in the wider landscape is essential for the provision of all the necessary resources for each generation, over successive years. These fine-grained landscapes were created over past centuries by traditional land-uses, as a result of interactions between their physical diversity, in terms of topography, soils and climate, and historic cultural factors, such as ownership patterns and management methods.

2.6.11 Other farm operations or infrastructure

The erection of fencing in open habitats can pose a significant threat for some large birds that are not very manoeuvrable in flight. Such species require large open habitats and therefore the use of fencing in habitats such as steppes can have a major impact on species such as the Great Bustard (*Otis tarda*) (Bota et al, 2005), while Black Grouse (*Tetrao tetrix*) and Capercaillie (*Tetrax urogallus*) frequently collide with deer fencing on moorlands in the UK (Baines and Andrew, 2003; Baines and Summers, 1997).

2.6.12 Changes in hydrology

A quarter of the species and one third of the habitats are affected by changes in their hydrology and eight habitats are critically threatened by such changes. In many cases, the damage is due to drainage of land to allow agriculture, commercial forestry, or the development of infrastructure (Middleton et al, 2006). Artificial drainage is achieved through the digging of channels or ditches and the use of dams and sluice gates to redirect water flow (Holden et al, 2004). This leads to lowered water tables and the drying out of habitats with resulting changes to physical and chemical properties and a consequent loss of characteristic ecological communities (ŠeffEROVÁ et al, 2008a; ŠeffEROVÁ et al, 2008b). Wet grasslands and meadows are very sensitive to changes in groundwater levels (Houston, 2008a). Ancient waterway systems constructed to supply water meadows and upland

pastures are also important habitats for plants and animals, but are increasingly rare (Küster and Keenleyside, 2009). Many of these habitats have been degraded by drainage, abstraction or blocking of historical water channels to allow agriculture, commercial forestry and infrastructure development.

2.6.13 Afforestation

Afforestation is reported as a major pressure on abandoned pastures and meadows, affecting half of the habitats investigated, including fixed dunes, inland dunes and xeric sand calcareous grasslands afforested with conifers.

2.7 Conclusions

A significant proportion of Natura 2000 area is dedicated to agriculture and many habitats and species of EU interest (protected under the Habitats and Birds Directives) are dependent on or associated with agricultural practices.

Abandonment of extensive traditional farming practices is the most important pressure on key agricultural habitats and species, which emphasises the need to support those farming practices in Natura 2000 areas. At the same time, other pressures linked to intensification of farming practices are also negatively affecting agricultural habitats and species of Community interest.

3. Recommendations for agricultural management of Natura 2000 habitats and species

3.1 Introduction

Extensive agricultural management is necessary for the continued existence of all key agricultural semi-natural habitat types and most key agricultural species identified in this report. The analysis of key pressures in the previous section confirms that abandonment of these extensive management regimes is the dominant threat, followed by intensification of management. All habitat types and most key species have unfavourable or unknown conservation status and therefore initial restoration actions will be necessary prior to the introduction of suitable long-term management.

This chapter summarises the main management measures needed to restore and maintain favourable conservation status for the key agricultural habitats and species in Natura 2000 sites. These measures are to be implemented by farmers and adequate support should be provided to them. Some of the required practices are already in place and it is important to recognise the role of farmers in managing habitats and assist continuation of their activities.

3.2 Key considerations for ecological management of farmland habitats

Effective management of farmland habitats needs to consider the following key factors:

- **Site-specific management with clearly defined conservation objectives** – The optimum regime can vary considerably between habitat sub-types and on a site-by-site basis, depending on factors such as soil, vegetation, altitude, climate, and management history. For measures to be effective, a clear definition of favourable conservation status and corresponding objectives for management are necessary.
- **Conservation trade-offs** – A balance of conservation measures and clear conservation objectives are necessary, as different species within a habitat will respond differently to management actions. Appropriate management strategies should either maximise the benefits to all species or favour sensitive or priority species, as defined by the conservation aims.
- **Adaptive management and innovation** – Some experimentation is often necessary to identify the optimal management strategy for a specific site, particularly during habitat restoration. This requires careful planning of appropriate actions and close monitoring of their impacts so that further adjustments are made as necessary.
- **Habitat diversity and heterogeneity** – The complex structure of some key habitats underpins their species richness. To maintain heterogeneity, management type and intensity within these habitats must be varied and edge habitats maintained.
- **Landscape-scale interventions** – The scale at which conservation measures are implemented will affect their effectiveness. They must be targeted to a sufficiently large area to maintain or restore ecologically viable areas of suitable habitat or maintain minimum viable populations of species (see Section 6.4.1 for more on recommendations for landscape scale interventions).

3.3 What farming practices contribute to maintenance and conservation of agricultural habitats and species in Natura 2000?

Key farming practices for agricultural habitats and species in Natura 2000 have been identified from the analysis of key pressures in Section 2 and the review of existing management recommendations for the habitats and species analysed. The measures and the main considerations for their implementation in order to contribute to the conservation of key agricultural habitats and species are briefly described below.

A table included in Annex 2 describes more specifically the main management measures needed to restore and maintain each of the key agricultural habitats considered. Further information can also be found in the Background report 2 prepared for the development of this on guidance document.

3.3.1 Grazing

Most of the habitats considered in this report are managed by grazing, which prevents succession to woody shrubs and trees and controls invasive alien species. However, habitats can be degraded by over- or under-grazing, or inappropriate stock types and grazing regimes (see Section 2). The main considerations in grazing management are as follows:

- *Stocking rates/intensity.* For almost all of the key semi-natural habitats, management recommendations require grazing regimes to be extensive, with low to moderate stocking levels (see table in Annex 2). However, a small number require high grazing rates to maintain their conservation value. Determining specific stocking rates for a habitat type must take into account specific local conditions, including: type and age of vegetation; habitat productivity; soil type; hydrological conditions; the degree of grazing by wild herbivores; site management history and conservation objectives. A careful balance of stocking rates and length of grazing period should be established to ensure suitable grazing pressure. It is also important to consider the utilisation rate of the stock.
- *Stock types, breeds, and combining grazers.* Different stock species graze in different ways, affecting their suitability for individual habitats. Cattle are non-selective grazers and thus can suppress abundant grass species. Sheep are better suited to nutrient-sensitive habitats, areas susceptible to erosion, where conditions are drier and grassland productivity is lower. Horses and ponies are used less commonly and usually in combination with sheep or cattle. Mixed herds of goats and sheep are beneficial on some habitat types, especially where scrub encroachment has occurred. However, goats should not be used without a shepherd where there exist patches of sensitive habitats. Using a combination of grazers can create a varied sward structure favouring a wide range of species.
- *Seasonality and timing, rotational grazing.* In some alpine and subalpine grasslands, seasonality underpins traditional 'transhumance' grazing regimes, in which animals are grazed on the hills during the summer and brought down to valley pastures in winter. Grazing seasonality varies regionally and productivity and soil conditions can support year-round grazing where habitats occur at certain altitudes and latitudes.

Although established seasonal patterns of grazing are determined by long-term climatic conditions, it is necessary to adapt management levels year-on-year, as many semi-natural habitats show considerable inter-annual fluctuations in productivity as a result of climate variability. Rotational, rather than continuous, grazing is generally preferable, as it offers the best means of creating a heterogeneous habitat while avoiding excessive damage through trampling and dung fertilisation of single patches. However, it is costly and labour-intensive (requires shepherding or fencing) potentially limiting its practicality. As mentioned earlier, a balance must be found between a long period of relatively low intensity grazing or a shorter higher intensity regime.

3.3.2 Shepherding

For many habitats, particularly in mountainous regions, shepherding is a cultural tradition. Skilled shepherding maintains extensive grazing of open habitats, diverse in space and time, and an optimal intensity for maintenance of vegetation diversity, suitable for both livestock and biodiversity. Shepherds divide large grazing areas into sectors, within which they encourage livestock to graze on the optimum balance of more and less palatable species, in order to ensure a good diet with minimum energy use, whilst simultaneously maintaining the pasture and controlling scrub. Specifically, shepherding benefits biodiversity through:

- *Control of scrub and heath.*
- *Maintenance of a mosaic of habitats and habitat edges.*
- *Wildfire control.*
- *Reduction of risk of erosion and desertification.*
- *Supply of livestock carcasses.*
- *Seed dispersal.*
- *Redistribution and concentration of nutrients.*

Pastoralist and transhumance systems that maintain seasonal grazing on open pastures are being widely abandoned. Current initiatives to support these systems include shepherding schools in France and Spain.

3.3.3 Sheep and cattle folding, location of water and shelter

In some parts of Europe, sheep and cattle have been traditionally kept in fenced areas at night for protection from predators. Folding can create very high grazing pressure over a small area, resulting in intense browsing and trampling, eutrophication and changes in soil properties, which can cause a decline in characteristic species and, often, invasion of alien species. Similarly, the location of water supply and shelter will have an influence on stock behaviour, potentially causing similar problems. Folding is not recommended on natural grasslands or semi-natural dry grasslands. However, it may be permitted in some locations, provided pens are removed each day or livestock density and grazing period are limited.

3.3.4 Burning

Some grazed natural and semi-natural grasslands, scrublands and heathlands are burned to prevent establishment of woody species, reduce litter and release nutrients. This stimulates earlier growth and increases accessibility, palatability, and nutrient content of forage for game and livestock. Fires can help maintain low nutrient conditions, particularly where atmospheric pollution results in higher than natural nutrient inputs from rainfall. Burning of small patches can increase structural diversity of vegetation and heathland plant, invertebrate and bird species richness. Regular burning reduces fuel loads and to some extent the risk of large and very hot wildfires, which can cause severe long-term damage. However, inappropriate burning management (eg burning the wrong type or age of vegetation) or uncontrolled burning over large areas leads to significant negative impacts.

Burning management is not recommended for habitats on peaty organic soils, as burning of soil organic matter is forbidden in many countries. Burning should not be carried out in areas where protected bird species nest, and should only be allowed outside the nesting season. Burning must be very carefully controlled and restricted to small areas.

Box X. Examples of controlled burning management

UK moorlands (upland dwarf shrub heathlands) used for Red Grouse (*Lagopus lagopus*) shooting are managed by burning 30-m wide strips of about 0.5 ha in total area, although larger fires are not uncommon. Typically, each strip is burnt every 10–15 years. Wet heath moorland management aims to encourage structural and species diversity between and within stands, and maintain presence of all growth phases of *Calluna*.

Many Mediterranean scrub habitats were traditionally managed by burning, including mountain habitats such as mountain *Cytisus purgans* formations, endemic oro-Mediterranean heaths with gorse, and more coastal habitats, such as phrygas. Areas of primary climax formations should never be burnt, and burning should only be carried out with clear measures to protect sensitive species, such as *Perdix perdix*.

3.3.5 Mowing/hay-cutting

Many semi-natural grasslands (meadows) are cut for hay to produce forage that can be stored for winter feeding of cattle. Hay cutting is also often used where productivity is too low to support grazing. Cutting is non-selective and therefore encourages the growth of grasses and low-growing herbs whilst reducing tall herbs and eliminating woody plants. Removal of the cut grass from the field results in long-term maintenance of low in nutrient levels, resulting in semi-natural meadows with very high plant diversity and of considerable conservation value, both for their plant and associated invertebrate communities.

- *Timing and frequency.* In general, hay meadow habitats should be cut between mid-July and August, when the grass reaches about 50–120 cm high, after breeding birds have hatched and plants have set seed. Mowing operations should be varied in time and space to create a habitat mosaic, either by leaving areas (10–20% of the habitat) unmown for a year and rotating the unmown plots annually, or by mowing all plots in a year, but mowing different areas in different seasons. A rotational grassland

management program maintains a range of different successional stages, increasing species diversity. Optimal mowing frequency varies among habitat types and sub-types and on a site-by-site basis depending on, eg conservation aims.

- *In-field drying and removal of cut biomass.* In hay meadows, cut hay should be left to dry in the field before collection and stacking to allow seeds to drop and ensure the reproduction of flowering plants. For most of the other mowed habitats, cuttings should be removed as soon as possible, to avoid nutrient enrichment and ‘choking’ of the underlying vegetation.
- *Mowing equipment/machinery.* Traditional low-intensity methods of hay cutting, eg scything, have become uneconomic, but heavy machinery can damage habitats, particularly on waterlogged or loose soils susceptible to erosion and compaction. On wet soils, grass should instead be cut manually, or by using specifically designed machinery. To mitigate direct mortality of meadow fauna species caused by machinery, cutting should be carried out from the middle of the field outwards; the grass should be cut to a height not lower than 10 cm; cutting should take place after 10 am in the morning; and a lower-impact cutter-bar mower should be used.
- *Combining mowing and grazing.* In a number of habitats, grazing is used in combination with cutting, typically after a cut and usually in autumn or, in dry and mild areas, through the winter. Grazing can introduce greater habitat heterogeneity and a more diverse sward than cutting alone, as animals preferentially graze the most nutritious grasses, and trampling creates patches of bare soil. In some cases, mowing can be used to overcome problems from under-grazing, particularly for initial clearance of habitats that have become densely covered in scrub.
- *Substituting grazing for mowing.* This is not recommended, as it is likely to result in changes in the ecological community composition. However, in some habitats and for many grassland butterfly species, for example, very low intensity grazing can be an appropriate substitute for mowing.

3.3.6 Fertiliser use – manure and mineral fertilisers

Almost none of the dry grassland types can tolerate fertilisation, either on-site or in adjacent areas, and many are already adversely affected by eutrophication (see Section 2.6.5). Management of these habitats should prioritise the *prevention* of nutrient input from fertilization, agricultural run-off or inundation with nutrient-rich surface water, and from supplementary feeding of grazing livestock.

On nutrient-sensitive meadows, fertilisation must be strictly controlled or prohibited, both within the habitat and in the surrounding area. However, mountain and lowland hay meadows depend on some fertilisation to maintain productivity and species diversity and an integrated multi-taxa approach to management is recommended. Application of slurry or NPK mineral fertiliser to obtain acceptable yields of biomass with adequate nutrient content for livestock, has minimal detrimental impact on species richness and diversity in such meadows. However, in more nutrient poor habitats, the impact will be more severe.

3.3.7 More intensive restoration measures including habitat re-creation

In regions with intensive agriculture and little remaining natural habitat, substantial restoration measures will be needed to achieve favourable conservation status for key Natura 2000 habitats and species. Restoration actions may involve:

- *Reversing soil enrichment and re-introducing vegetation.* Where habitats have been damaged by agricultural intensification, including drainage and fertilisation, these must be restored by reducing soil fertility, through cessation of fertilisation and removal or burial of nutrients.
- *Reseeding to restore plant species diversity.* This may be achieved by spreading hay from suitable grasslands (green or dried hay), or acquiring seed of specified plant varieties and oversowing this on bare ground in summer, bedding it in with a roller, or sowing it into the sward using a slot-seeder. Sometimes it may be necessary to prepare the seed bed by ploughing or discing part of the grassland turf.
- *Controlling scrub.* Abandoned or under-grazed semi-natural habitats can be restored by removing scrub, before reintroducing mowing and/or grazing management.
- *Controlling invasive weeds and alien species.* Invasive alien shrub and tree species must be cut and the stumps removed or treated to prevent regeneration. Weeds can be chain harrowed, cut or topped before they flower, but not during the bird nesting season. Grazing from late winter to early spring can help control some perennial weeds, while intensive trampling by livestock can help control bracken (*Pteridium aquilinum*).
- *Maintaining trees in wood pastures: pollarding, coppicing, rejuvenation.* In under-grazed and overgrown wood pastures, encroachment can have detrimental effects on veteran trees (ie large, old and hollow trees) and growth should be thinned out from around these. Some trees can be allowed to mature and split, thus increasing structural habitat diversity. In the dehesas and montados of Spain and Portugal, oak regrowth must be protected and encouraged through, eg protection of young trees from grazing, replanting, and rotation of grazing.

3.3.8 Restoring hydrological management

Some key semi-natural habitats occur in wetland regions with high water-tables or periodic inundation, and depend on the continuation of historical hydrological regimes. These have often been altered for flood management or to permit alternative land uses or development (see Section 2.6.12). Where possible, management should include reversal of such modifications. Strategies to restore hydrological regimes should be designed to mimic natural hydrological functions, including use of the same water source.

- *Managing hydrological units.* Management should be undertaken at the scale of individual hydrological units, if they can be isolated as such, as well as at the level of the whole hydrological system. Consequently, hydrological management requires good knowledge of the system, and only undertaken if adverse effects on adjacent habitats or nearby infrastructure can be avoided.

- *Reversing drainage.* Existing drainage channels can be blocked by damming with wooden, metal or plastic sheets or by infilling with a 'plug' of soil and vegetation to retain water. Further drainage should not be permitted.
- *Restoring ground water levels and regimes.* Several semi-natural habitats (in particular humid grasslands) are very sensitive to changes in groundwater levels. Water tables should be raised by halting groundwater abstraction or, where this is not a viable option, restricting the volume of water that can be removed and the times at which this can occur. In some areas, groundwater may be recharged by constructing downstream dams or sluices to retain water, although there is some risk of undesirable stagnation of water or overtopping of channels with limited infiltration in habitat types with less permeable soils.
- *Flooding and river regulation.* Some important habitats (eg alluvial meadows) depend on regular flooding for supply of nutrients and substrate material. Winter flooding of many floodplain grasslands is also very important for wintering waterbirds (eg ducks, geese and swans) and for creating suitable habitats for breeding waders. In areas where damming is practicable, sluices can be used to keep sites flooded during the winter. Where this is not feasible, a more natural river regime should be restored in other ways.
- *Coastal hydrology.* Coastal habitats, including meadows and dune systems, depend on regular disturbance through the action of tides, waves and wind. Managed realignment, ie the removal of coastal defences in order to restore natural coastal dynamics, should be carried out, providing all potential consequences (eg for sediment regimes, erosion rates along the coast) have been fully considered. In many cases, complete removal of defences will not be possible, but can be modified to reinstate a more natural flooding regime. For example, flow-regulating channels and sluice gates can be added to sea walls to allow a controlled degree of tidal exchange, which is important for coastal meadows and pastures.

3.3.9 Measures for species conservation

The measures necessary to maintain and restore favourable conservation status for most key species will be the same or similar to those described in the previous section. Key elements include ensuring appropriate grazing rates and seasons, correct timing of hay cutting, maintenance of water levels and flooding regimes in wet grasslands, and avoidance or strict control of fertiliser and pesticide application. Should burning be required for habitat management, careful planning and control are necessary to avoid the breeding season for ground-nesting birds or periods when plants are especially sensitive to fire.

Additional actions for species conservation include:

- Ensuring all habitat requirements are provided across seasons and within home range area, which may require a mosaic of different habitat patches.
- Maintenance of nesting sites (eg deadwood or holes in old trees or buildings) or their artificial provision (eg as bat or bird nesting/roosting boxes).

- Supplementary feeding for some species with particular requirements that cannot be easily replaced (eg carcasses for vultures).
- Modification of farming practices (such as mowing and grazing density) to avoid or reduce mortality and disturbance of vulnerable species (eg ground-nesting birds).
- Control or eradication of alien species that compete with or predate native species of conservation importance.

Conservation measures require good knowledge of species ecology, life-cycle and site-specific condition and requirements. Agri-environment measures should include tailored measures, which must be spatially targeted for effectiveness and efficiency. It is important to note that many species of community interest are also dependent on habitats outside Natura 2000 designated sites.

3.3.10 Key measures to conserve species on arable land

Some of the most threatened species listed on the Habitats and Birds Directives are dependent on extensive management of arable land. Key management measures include:

- low input cultivation: low fertiliser use, no or little irrigation, and use of crop varieties suited to low productivity environments;
- no pesticide application;
- summer cereal cultivation with long stubble period and maintenance of fallow areas;
- mixing and alternating arable and grassland crop areas;
- patches or strips of crops for foraging and/or shelter eg green fodder, bird seed;
- adapting crop harvesting methods to species needs, eg no deep ploughing, protection of nesting birds and other fauna from farm operations;
- creation of nesting plots or refuge strips.

Some key species are found on intensively managed agricultural land. Measures include:

- Geese and other wildfowl and waders on intensively managed grassland – management of grazing damage (mainly in winter); protection of breeding birds from farm operations; restricting pesticide use to maintain invertebrate populations; maintenance of groundwater levels, winter flooding, and/or soil structure to ensure good soil penetrability for foraging.
- Hamster (*Cricetus cricetus*) – maintenance of green fodder areas, sacrificial cereal strips, no deep ploughing to prevent burrow damage (see Netherlands case study).

3.3.11 Protecting, maintaining and restoring farmland habitats for species

Farmland features such as hedges, dry stone walls, ponds and terraces are key habitats for species associated with extensive agriculture. Traditionally managed permanent crops,

including vines, orchards, olive groves, and nut groves, are important habitats for a range of birds, mammals, reptiles, amphibians and invertebrates of community interest. The crops themselves (especially old trees), and also the extensively managed grassland and other associated habitats, provide nesting and foraging sites (see Italy case study).

Key farmland habitats and features that require preservation and maintenance include:

- hedgerows, copses or small woodlands, single trees and bushes in fields – must be trimmed, pruned, replanted;
- farmland ponds and ditches – should be regularly dredged, vegetation controlled, protected from pollution and prevented from drying out, and new ponds should be frequently created;
- dry stone walls and stone terraces – must be preserved and maintained;
- field margins and buffer strips – must be maintained by mowing, and kept free of pesticides and herbicides;
- orchards, olive groves, nut groves with old mature trees – should be supported, regularly pruned, replanted, and kept free of pesticides;
- farm buildings, cellars and caves – are used as hibernation, roosting and breeding sites for bats, birds, reptiles, etc. and should be protected from disturbance.

3.3.12 Maintaining viable populations and meta-populations

Habitat patches must be sufficiently large to maintain viable populations, or sufficiently connected to support meta-populations¹⁸. This is important for large species that require large areas of habitat (such as many birds of prey and large carnivores), especially in fragmented landscapes. Species that are rare due to the absence of appropriate habitat will benefit most from restoration of suitable habitats and appropriate management, and can be reintroduced where they have disappeared. On the other hand, species that are rare primarily for natural reasons should be conserved by protecting the sites where they already occur, for example in botanical ‘micro-reserves’.

Where populations are not viable in the long-term, conservation actions should be focussed on targeted locations. The area and/or quality of suitable habitat should be increased before increasing connectivity. Habitat restoration actions may be needed for long-term maintenance of existing populations. Where connectivity is needed, “stepping stones” should be created and major barriers such as roads and railways should be bridged.

¹⁸ A meta-population is a set of populations of one species, which exists in a fragmented landscape, distributed over a number of habitat patches linked together by dispersing individuals. Dispersal depends on the distance between patches and the quality of the intervening landscapes (barriers, corridors, etc.) and influences local extinction and recolonisation rates, which in turn determine the viability of the meta-population.

4.4 Conclusions

Agricultural management measures are necessary for achieving favourable conservation status of key habitats and species in Natura 2000 sites. These must be tailored and targeted in order to be effective. It is important to consider site-specific management history, as habitats will often have adapted to and depend on the continuation of traditional regimes.

Maintaining appropriate regimes for grazing, mowing, burning and other traditional activities may be crucial for the conservation of certain habitats and species of European importance, while species-specific measures may also be needed. Initial restoration actions may be necessary prior to the reintroduction of suitable long-term management.

4. Planning for Natura 2000 farmland management

4.1 Introduction

This chapter explains what management authorities should take into account in planning their Natura 2000 farmland management and describes the range of policy instruments that can be used to support Natura 2000 farmland management. These mainly include management provisions for Natura 2000 sites under the Habitats and Birds Directives and the instruments under the Common Agricultural Policy. [Some of the new proposals under the CAP are also considered and there are references those new measures that are especially relevant to the Natura 2000 management.](#)

This chapter also reviews the potential of market based approaches to support Natura 2000 management through, for example, payments for environmental services (such as water provision) and accreditation and labelling schemes. The Commission has declared its intention to promote the use of innovative approaches and market-based instruments including private funding to support Natura 2000 management, although it recognises that these sources are likely to account for only a small proportion of the overall funding of the Natura 2000 network in the nearer future, and core public funding from the EU and Member States will continue to be required to deliver the conservation benefits of the network (European Commission, 2011).

4.2 What are the obligations in Natura 2000 sites?

4.2.1 Ensuring appropriate management and avoiding deterioration

The Habitats Directive places an obligation on Member States to ensure that the management of Natura 2000 sites is appropriate for the conservation of the habitats and species of Community interest for which the site is designated (see also section 2.4 on this issue).

Under Article 6(1) Member States must establish the ‘*necessary conservation measures*’, for each SAC¹⁹, for example through management plans and/or contractual agreements with landowners, to provide the necessary ecological conditions for the habitats and species of Community interest that are present in the site. Defining site level conservation objectives is also necessary for the definition and establishment of the necessary conservation measures (see also section 2.4). The Commission has produced an interpretation note on the definition of Conservation objectives for Natura 200 sites and is producing new guidance on the definition of conservation measures in accordance with Article 6(1)²⁰ (see also European Commission, 2000).

¹⁹ And sites that have been listed by the Commission as Sites of Community Importance (SCIs) that must be designated as SACs.

²⁰ Natura 2000 management planning – draft guidance document. Available at: http://circa.europa.eu/Public/irc/env/natura_2000/library?l=/2000_management/meeting_november_2011&vm=detailed&sb=Title

Site-level conservation objectives must define the condition to be achieved by species and habitat types within that site in order to maximise the contribution of the sites to achieving the overall FCS. This will involve assessing at the site level the degree to which the habitat or species concerned needs to be maintained at a particular conservation status, or, more often, to be restored to an improved conservation status. This applies to the habitats and species that were defined as having a significant presence (ie excellent, good or significant representativity) in the Natura 2000 standard data form for the site, and not for the habitats and species that have a non-significant presence. It is important to design clear and accepted conservation objectives, as these are the basis on which the conservation measures should be defined.

Conservation measures can include both site-specific measures (ie management actions and/or management restrictions), and horizontal measures that apply to many Natura 2000 sites over a larger area (eg measures to reduce nitrate pollution or to regulate hunting or resource use). Conservation measures also need to take account of economic, social and cultural requirements, as well as regional and local characteristics (Article 2.3). Conservation objectives should be long term (eg to 2020), whereas conservation measures can be set for a shorter time period, with regular revision and adaptation.

Member States are free to choose whether they establish the necessary conservation measure in specific management plans for Natura 2000 sites or in other relevant plans, or they use statutory, administrative or contractual measures to implement these management requirements for sites and species.

In most cases Member States primarily rely on voluntary contracts with land managers to ensure the necessary agricultural management is undertaken to maintain favourable conservation status, for example through agri-environment schemes (AES). In most of the Member States it is not clear how improper management will be addressed if a voluntary Natura 2000 management contract is broken. However, the Directive requires that Member States must take action if there is deterioration, for example if agricultural practices are not delivering FCS.

Article 6(2) of the Habitats Directive requires that Member States take ‘appropriate steps’ to avoid the deterioration of the habitats concerned and any disturbance of those species for which the sites have been designated. Articles 6(1) and 6(2) refer to Article 4 of the Birds Directive for SPAs, which places an obligation on Member States to ensure that the management of SPAs is appropriate for the conservation of the bird species for which the site is designated, and to undertake restoration measures where necessary.

Articles 6.1 and 6.2 apply to farmers through their incorporation into the cross-compliance rules of the Common Agricultural Policy (see [Section 4.5.1](#)). Some Member States have also chosen to include specific bird protection obligations (Birds Directive Article 5) in their cross-compliance rules (see [Section 4.5.1](#)). For example, England (UK) cross-compliance regulations do not permit hedge trimming between March and 31 July (with some exceptions), to ensure farmers do not intentionally kill, injure, or take any wild bird or their

eggs or nests²¹. The Commission's CAP legislative proposal includes a proposed cross-compliance standard element to ban hedge and tree cutting during the bird breeding and rearing season, so other Member States will be following England's example²².

Article 6.3 of the Habitats Directive specifies that development plans and projects that are likely to have a significant negative effect on a Natura 2000 site must be subject to an Appropriate Assessment. The aim is to avoid an adverse effect on the integrity of the Natura 2000 site. The Appropriate Assessment results in either a decision to approve the plan or project under conditions (e.g. certain measures that must be introduced to remove the likelihood of negative effects or to reduce them to a level where they no longer affect the integrity of the site), or a decision that alternative options must be explored instead.

The Commission provides guidelines on how to apply Article 6, for example on how to predict impacts and assess their significance (European Commission, 2002). Examples of agricultural developments that might be subject to an Appropriate Assessment include: land re-parcelling and consolidation; expansion of irrigation or drainage infrastructure, or its non-routine maintenance; expansion or upgrading of farm roads; building of glasshouses or other agricultural buildings; change of farming system (e.g. from arable to permanent crops); ploughing up of permanent grasslands and other semi-natural and natural habitats; introduction of new pesticides or significant change in the frequency/quantity of their use; or changes in grazing regimes that are likely to undermine the conservation of the Natura 2000 site (European Commission, 2002) (Birdlife International, 2009b). In addition to this list, any other change which is likely to have a significant impact should be submitted to an appropriate assessment, such as for example afforestation or tourist developments.

4.2.2 Ensuring coherence and connectivity of the Natura 2000 network

Article 10 of the Habitats Directive states that Member States should endeavour to maintain and where necessary improve the ecological coherence of the Natura 2000 network by encouraging the management of linear and continuous or small habitat features in the landscape which function as corridors or stepping stones for species migration and dispersal between the core habitats in Natura 2000 sites. Member States can exercise discretion as to how to implement the measure at the national level. The European Commission has published guidance on measures to reduce fragmentation (Kettunen et al, 2007) and assessing the impact of plans and programmes on the coherence of the Natura 2000 network (Arcadis and IEEP, 2010).

In its Biodiversity Strategy for 2020, the European Commission states that it aims to help improve connectivity amongst Natura sites and in the wider environment through the development of a Green Infrastructure Strategy. The Commission has produced a study on the integration of Natura 2000 into the wider countryside, which assessed trends in land use changes in all EU regions and identified possible actions effective at the EU level to integrate

²¹<http://rpa.defra.gov.uk/rpa/index.nsf/7801c6143933bb248025713f003702eb/ef5445dc8a577c06802573870041ac29!OpenDocument>

²² Annex II of European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy. COM(2011) 628 final/2. 19-10-2011.

the Green Infrastructure concept into other policy sectors (ATECMA et al, 2009). More recently studies have been carried out to support the development of a Green Paper by the Commission on Green Infrastructure (Mazza et al, 2012; Naumann et al, 2011). The connectivity requirement of the Water Framework Directive is also synergistic with the implementation of Article 10 (see section **¡Error! No se encuentra el origen de la referencia.**).

It is proposed that in future Natura 2000 compensation payments can be paid not just on designated Natura 2000 areas but also on “other delimited nature protection areas with environmental restrictions applicable to farming or forests which contribute to the implementation of Article 10 of Directive 92/43/EEC. These areas shall, per rural development programme, not exceed 5% of the designated Natura 2000 areas covered by its territorial scope”.

An important point to note is that only a proportion of the Natura 2000 habitat types are protected in Natura 2000 sites. For some habitat types dependent on agricultural management, only a small fraction is included in those sites (see Table 3-4 in section 2.X). Therefore Article 10 measures to protect and connect areas of Natura 2000 habitats outside the protected sites are vital to ensure the achievement of Favourable Conservation Status of the habitats and their species. Many Natura 2000 sites are too small to be able to maintain their ecological status without some functional connectivity with other high ecological value habitats and populations, to enable ecological processes to continue and necessary movements of species (e.g. for foraging, migration, genetic exchange, meta-population support and redistribution in the face of climate change). It is therefore important to ensure that suitable measures are also taken outside Natura 2000 sites to ensure adequate functional connectivity, wherever this is necessary to maintain favourable conservation status (Kettunen et al, 2007). Patches of semi-natural habitat and other farmland features can play an important role in maintaining connectivity in agricultural landscapes (Farmer et al, 2008a).

The proposal to extend Natura 2000 payments to stepping stone habitats could give Member States a useful tool to counter fragmentation in the Natura 2000 network, for example by providing farmers with support to manage small patches of Annex I habitat that lie outside the designated Natura 2000 areas, but that provide functional connectivity for species. The proposed greening requirements in the Commission’s CAP reform proposal, especially buffer strips and Ecological Focus Areas, might also help to reduce fragmentation and hence the implementation of Article 10 by Member States.

4.2.3 Financing conservation measures in Natura 2000

It is important to note that although a range of EU policy instruments potentially provide funding for Natura 2000 management, in practice not enough funding is being allocated or accessed: perhaps a fifth or less of the funding that would be necessary (European Commission, 2011; Gantioler et al, 2010; Kettunen et al, 2011). A range of constraints, such as limited integration of Natura 2000 into the national funding priorities and lack of stakeholders' capacity, hinder the uptake of opportunities provided by the EU co-financing framework (Kettunen et al, 2011).

While the main responsibility for financing Natura 2000 lies with the Member States, Article 8 of the Habitats Directive explicitly links the delivery of necessary conservation measures for Natura 2000 to EU co-financing.

The Commission has set out clearly its views on the importance of Union funding for biodiversity and nature protection in the next multiannual financial framework in its Communication on 'A budget for Europe 2020'²³ (and the environment and climate policy fiches²⁴) in which it clarified that "the effective management and restoration of Natura 2000 protected areas is central to attainment of the EU 2020 biodiversity target of halting and reversing the decline of biodiversity in the EU. And also that "at EU level, a strengthened integrated approach using the various EU sectoral funds, ensuring their consistency with the priorities of Natura 2000 action frameworks, together with an enhanced LIFE Biodiversity strand, will provide a strong basis for the new Natura 2000 financing strategy".

The integrated approach was chosen to ensure that the management of the sites is part of wider land and water management policies, to allow Member States to set priorities and to develop policies and measures which reflect their national and regional specificities, and to avoid duplication and overlap of different EU funding instruments and the administrative complication and transaction costs which would be associated with such duplication. Following this approach opportunities for funding Natura 2000 have been included in each of the relevant EU funds for 2014-20 financing period, including sectoral proposals on cohesion funding²⁵, the common agricultural policy²⁶, European maritime and fisheries policy²⁷ and the LIFE²⁸ financial instrument for the environment and climate action. In particular, the common agricultural policy (CAP) has been and will continue being an important financial source. Funding from both pillars of the CAP will be a main source of financing and appropriate mechanisms are required to guide Member State expenditure in this direction (Polakova et al. 2011).²⁹

In order to ensure a better use of the opportunities available for managing Natura 2000 sites under EU funds, particular attention will need to be paid to more strategic multi-annual planning approach to Natura 2000 financing. Article 8 of the Habitats Directive already foresees the need to develop a '**Prioritised Action Framework**' when designating sites as SACs. Developed at national or regional level, these action frameworks can provide a useful planning tool to strengthen the integration of Natura 2000's financial requirements into other relevant EU financial instruments.

The Commission is currently urging Member States to produce prioritised action frameworks laying out how they propose to allocate sufficient funding for Natura 2000

²³ COM(2011) 500 final, Part I.

²⁴ COM(2011) 500 final, Part II.

²⁵ COM (2011) 612 final, COM (2011) 614 final

²⁶ COM(2011) 625 final, COM(2011) 627 final

²⁷ COM(2011) 804 final

²⁸ COM(2011) 874 final

²⁹ (IEEP Report on CAP and Biodiversity http://ec.europa.eu/agriculture/cap-post-2013/legal-proposals/com625/625_en.pdf)

management from the available options³⁰. The elaboration of Prioritized Action Frameworks for Natura 2000) requires the identification of priority measures for Natura 2000 agricultural (and forest) habitats and species and the potential financing sources for those measures³¹.

4.3 What are the main drivers of agricultural change that need to be addressed?

Abandonment of extensive traditional practices has been identified as the most important threat to agricultural habitats and species of Community interest (see section 2). All the key agricultural semi-natural habitat types and most of the key agricultural species identified in this report are dependent on extensive agricultural management for their continued existence throughout most, or all, of their range. Several studies have found that many semi-natural agricultural systems within Natura 2000 sites, and other areas of HNV farmland, are highly vulnerable to agricultural abandonment (IEEP and Veeneecology, 2005; Keenleyside and Tucker, 2010; Poláková et al, 2011; Zimmermann et al, 2010).

Agricultural abandonment is driven by a complex range of drivers that undermine the viability of farming under the current land use and socio-economic context in each area (Keenleyside & Tucker, 2010). Farming in these areas is challenged by a combination of social, economic, political and environmental factors, for example declining meat prices, labour and time intensiveness constraints, poor access to markets, ageing rural populations, soil erosion, and constraints to productivity and mechanisation posed by geographical factors such as steep slopes or low soil fertility (IEEP & Veeneecology, 2005; Keenleyside & Tucker, 2010).

Extensive livestock management has become unprofitable in many agricultural regions resulting in either abandonment or intensification in the absence of compensatory financial support (Beaufoy and Marsden, 2010). In Eastern Europe the closure of many state farms resulted in a dramatic decline in livestock numbers and the abandonment of large areas of grazing land. Projections of areas currently most at risk from abandonment identify mountainous and hilly areas (Keenleyside & Tucker, 2010). Most of the habitats in these areas have poor forage value and low rates of productivity meaning that such systems are often only marginally profitable in terms of their agricultural products (Ecologic, 2006a). A UK survey found that a third of upland farmers have reduced or stopped grazing on moorland within the last four years (Clothier and Finch, 2012).

The maintenance of farming practices, in particular of some traditional extensive farming systems is key to nature conservation and Natura 2000 sites. Such traditional farming systems are threatened by the abandonment of agricultural practices in many areas of Europe and there is a need to act in order to keep them in the territory; this requires providing sufficient and adequate support to farmers that face the above-mentioned socio-economic challenges, taking into account the environmental services they provide.

³⁰ The Habitats Committee has developed a uniform format for prioritized action frameworks together with Member States.

³¹ http://circa.europa.eu/Public/irc/env/habitats/library?!=/habitats_committee/meetings_in_2012/meeting_april_2012/documents&vm=detailed&sb=Title

On the other hand, the second most important pressure on key agricultural habitats and species is the intensification of management. Over the last hundred years and particularly since the 1950s, drivers of agricultural development (such as increasing commodity markets and prices, technological advances and market measures and support under the CAP) have led to widespread agricultural improvements and the intensification of management. This has led to significant changes in agricultural habitats, such that many of the natural and semi-natural elements that remained have been lost, resulting in highly modified and simplified agricultural systems.

In agriculturally productive areas, habitats are often affected by the intensification of agricultural practices. Over half of the habitats and species analysed are affected by over-intensive grazing in some parts of their distribution areas, and 40% of the habitats considered are affected by cultivation.

Many of the habitats are affected by a combination of abandonment in some areas and intensification in other areas.

4.4 What are the main policy and funding instruments that can support required farmland management?

This section provides a summary of the main policy and funding instruments that can be used to maintain or restore agricultural management on Natura 2000 sites. A summary of the main measures that can support habitats and species of Community Interest is provided in Table 4.1. This section outlines the potential relevance of each measure to Natura 2000 sites, key agricultural habitats and species, and briefly outlines any issues that appear to be affecting biodiversity benefits, positive or negative.

One of the principal sources of funding for Natura 2000 farmland management is the Common Agricultural Policy³². This review is based on the evidence of how Member States have used CAP measures in the current funding period (2007-2013), but also considers the European Commission's draft legislative proposals for the future of the CAP post 2013 published on 12 October 2011.

A more detailed description of the measures introduced in this section is provided in [in the Background report 2](#). In this section we try to discuss the main issues of relevance for the management of farmland in Natura 2000 (**PART OF THE INFORMATION COULD BE INCLUDED IN AN ANNEX**).

³² In many Member States, large areas of extensive grazing land are classified as forestry land rather than agricultural land. Most of the described measures are also relevant to this land, but users are also referred to the forthcoming Commission guidelines for management of Natura 2000 forestry land for more detail on how to manage grazed forest land.

Table 4.1. The range of instruments that can support Natura 2000 farmland management

Instruments that determine the compulsory protection baseline for farmland	
Birds & Habitats Directives (Council Directive 79/409/EEC) (Council Directive 92/43/EEC)	Natura 2000 site management plans or requirements - Habitats Directive Article 6 & Birds Directive Article 4(1),(2)&(4) Management of stepping stones & landscape features - Habitats Directive Article 10)
CAP Cross-compliance – SMRs (Annex III of Council Regulation (EC) No 1782/2003 ³³ , Article 5 of Council Regulation (EC) No 73/2009 ³⁴ ; Article 93 and Annex II of COM(2011) 628/3 ³⁵)	SMR1: Protection of birds and bird breeding sites - Birds Directive Article Article 3(1),(2)(b), Article 4(1),(2)&(4) and Article 5(a),(b),(d) SMR2: Protection of groundwater against pollution (Groundwater Directive Articles 4 and 5) SMR3: Restrictions on use of sewage sludge (Sewage Sludge Directive Article 3) SMR4: Nitrate Vulnerable Zones requirements (Nitrates Directive Articles 4&5) SMR5: Natura 2000 site management measures (Article 6) and strict protection of Annex IV(b) plant species (Habitats Directive Article 13(1a)) (<i>proposed future</i>) Natura 2000 site management measures (Habitats Directive Articles 6.1, 6.2) SMR9: Pesticide use (PPPP Directive Article 3) (<i>proposed future</i>) River Basin Management Plan requirements (Water Framework Directive) (<i>proposed future</i>) sustainable pesticide use areas & integrated pest management plans (Sustainable Use of Pesticides Directive).
CAP Cross-compliance - GAEC standards (Article 6 and Annex III of Council Regulation (EC) No 73/2009 ³⁶); Article 93 and Annex II of COM(2011) 628/3 ³⁷) NB see Table 4.2 for a	Compulsory GAEC standards for: <ul style="list-style-type: none"> - minimum soil cover - minimum land management reflecting site-specific conditions - arable stubble management /(<i>proposed future</i>) ban on arable stubble burning - retention of landscape features, including, where appropriate, hedges, ponds, ditches trees in line, in group or isolated and field margins - avoiding the encroachment of unwanted vegetation on agricultural land - protection of permanent pasture

³³ Council Regulation (EC) No 1782/2003 of 29 September 2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers and amending Regulations (EEC) No 2019/93, (EC) No 1452/2001, (EC) No 1453/2001, (EC) No 1454/2001, (EC) 1868/94, (EC) No 1251/1999, (EC) No 1254/1999, (EC) No 1673/2000, (EEC) No 2358/71 and (EC) No 2529/2001.

³⁴ Council Regulation (EC) No 73/2009 of 19 January 2009 establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers, amending Regulations (EC) No 1290/2005, (EC) No 247/2006, (EC) No 378/2007 and repealing Regulation (EC) No 1782/2003.

³⁵ European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy. COM(2011) 628 final/2. 19-10-2011.

³⁶ Council Regulation (EC) No 73/2009 of 19 January 2009 establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers, amending Regulations (EC) No 1290/2005, (EC) No 247/2006, (EC) No 378/2007 and repealing Regulation (EC) No 1782/2003.

³⁷ European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy. COM(2011) 628 final/2. 19-10-2011.

<p>complete list of current and future proposed GAECs</p>	<ul style="list-style-type: none"> - establishment of buffer strips along watercourses (applies from 2012) - compliance with irrigation authorisation procedures where applicable <p>Optional GAEC standards for:</p> <ul style="list-style-type: none"> - minimum stocking rates and/or appropriate regimes - establishment and/or retention of habitats (can be applied from 2010) - retaining terraces - standards for crop rotations - appropriate machinery use - prohibition of grubbing up of olive trees - maintenance of olive groves and vines in good condition <p>Proposed future GAEC standards for:</p> <ul style="list-style-type: none"> - protection of wetland and carbon rich soils including a ban on first ploughing - prohibition of direct discharge of dangerous substances into groundwater and measures to prevent indirect pollution - ban on cutting hedges and trees during the bird breeding and rearing season and possible measures for avoiding invasive species and pests
<p>CAP Cross-compliance - permanent pasture rule</p> <p>(Article 6(2) of Council Regulation (EC) No 73/2009</p>	<p>Retention of permanent pasture: quantitative requirement at MS level (<i>proposed future</i>) retention of permanent grassland: quantitative requirement at farm level</p>
<p>Other Directives, Recommendations etc.</p> <p>(Directive 2007/60/EC) (Recommendation 2002/413/EC) (Article 39(3) of Regulation 1698/2005)</p>	<p>Flood plans and mitigation measures (Floods Directive) Integrated Coastal Zone Management strategies / plans (Integrated Coastal Zone Management Recommendation) Recipients of agri-environment payments must comply with requirements on the use of fertilisers and plant protection products which Member States must define (as required by Article 39(3) of Regulation 1698/2005)</p>
<p>Instruments that provide general support for Natura 2000 farming</p>	
<p>CAP Pillar 1 decoupled direct payments</p> <p>(Commission Regulation (EC) No 1122/2009³⁸; COM(2011) 625/3³⁹</p>	<p>Single Farm Payment and Single Farm Area Payment</p> <p>(<i>proposed future</i>) 'Greening payments' – crop diversification, maintenance of permanent grassland, Ecological Focus Areas</p>

³⁸ Commission Regulation (EC) No 1122/2009 of 30 November 2009 laying down detailed rules for the implementation of Council Regulation (EC) No 73/2009 as regards cross-compliance, modulation and the integrated administration and control system, under the direct support schemes for farmers provided for that Regulation, as well as for the implementation of Council Regulation (EC) No 1234/2007 as regards cross-compliance under the support scheme provided for the wine sector.

³⁹ European Commission (2011) Proposal for a regulation of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy. COM(2011) 625/3. 12-10-2011.

CAP Pillar I - Article 68 (Article 68 in Regulation (EC) No 73/2009 ⁴⁰)	Special support for : specific types of farming which are important for the protection of the environment - Art. 68 (1)(a)(i) specific agricultural activities entailing additional agri-environment benefits - Art. 68 (1)(a)(v) special support to address specific disadvantages affecting farmers in the dairy, beef, veal, sheep meat and goat meat and rice sectors in economically vulnerable or environmentally sensitive areas, or in the same sectors, for economically vulnerable types of farming – Art. 68 (1)(b)
CAP European Agricultural Fund for Rural Development (Council Regulation (EC) No 1698/2005 ⁴¹ ; COM(2011) 627 final/2 ⁴²)	Natural handicap / constraint (LFA) measures
CAP support for organic farming (Council Regulation (EC) No 834/2007, various CAP funding measures)	Article 68 payments under Pillar 1 (see above for details of regulation) Common Market Organisation for fruit and vegetables EAFRD Agri-environment payments (see below for details of regulation) <i>(proposed future)</i> EAFRD organic farming measure (see below for details of regulation)
Instruments that can support management and restoration of Natura 2000 farmland	
LIFE+ (Regulation (EC) No 614/2007 ⁴³ ; COM(2011) 874 final ⁴⁴)	LIFE+ Biodiversity LIFE+ Governance <i>(proposed future)</i> LIFE+ integrated projects
CAP European Agricultural Fund for Rural Development – measures for agricultural land (see above)	Agri-environment schemes, including organic farming and conservation of genetic resources (livestock and crops) <i>(proposed future)</i> agri-environment-climate schemes Natura 2000 and Water Framework compensation payments Non-productive investments / investment in physical assets Conservation and upgrading of the rural heritage (= basic services and village renewal in rural areas) Animal welfare <i>(proposed future)</i> Restoring agricultural production potential after natural disasters or catastrophic events and prevention actions
European Structural Funds	European Regional Development Fund European Social Fund European Cohesion Fund

⁴⁰ Council Regulation (EC) No 73/2009 of 19 January 2009 establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers, amending Regulations (EC) No 1290/2005, (EC) No 247/2006, (EC) No 378/2007 and repealing Regulation (EC) No 1782/2003.

⁴¹ Council Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD).

⁴² European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2.

⁴³ Regulation (EC) No 614/2007 of the European Parliament and of the Council of 23 May 2007 concerning the Financial Instrument for the Environment (LIFE+) - Commission statement.

⁴⁴ European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on the establishment of a Programme for the Environment and Climate Action (LIFE). COM(2011) 874 final.

Instruments that support advice, training and communication for Natura 2000 farmers and managers	
CAP European Agricultural Fund for Rural Development (see above)	Establishment and use of farm advisory and farm management services Training/knowledge transfer and information actions Conservation and upgrading of the rural heritage (= basic services and village renewal in rural areas)
CAP Farm Advisory System (Article 12 and 13 of Council Regulation (EC) No 73/2009)	Obligation to inform farmers about cross compliance requirements (<i>proposed future</i>) Obligation also to provide environmental and biodiversity management advice
Instruments that support socio-economic viability of farming in Natura 2000 areas – co-operative projects & partnerships, farm and business development, higher value agricultural products	
CAP European Agricultural Fund for Rural Development (see above)	Conservation and upgrading of the rural heritage (= basic services and village renewal in rural areas) Farm modernisation, diversification into non-agricultural activities, support for business creation and development (= farm and business development) Support for quality schemes for agricultural products and foodstuffs (<i>see below</i>) Setting up of producer groups LEADER approach (<i>proposed future</i>) Co-operation projects (<i>proposed future</i>) Support for innovative approaches for agricultural productivity and sustainability
Labelling, certification & product marketing schemes	Natura 2000 local labels and marketing schemes Protected Designation of Origin (PDO) Organic certification and marketing (<i>including</i> CAP support for organic farming, see above) Direct marketing schemes (<i>including</i> CAP EAFRD support for quality schemes for agricultural products and foodstuffs) Bioenergy products from biomass
Payment for Ecosystem Services schemes	Water quality payment schemes Carbon-offsetting
Ecotourism & nature recreation initiatives	Farm tourism initiatives (<i>including</i> CAP EAFRD funding for tourism activities, diversification into non-agricultural activities, business creation and development, LEADER projects)

4.5. The Common Agricultural Policy and its relevance for management of farmland in Natura 2000

The CAP is divided into two 'pillars' which differ in terms of financing, functioning and structure. Pillar 1 provides income support to farmers in the form of direct payments, and also funds other measures such as market interventions and export refunds. Pillar 2 supports the EU Rural Development policy. Pillar 1 is financed fully from the EU budget, whereas Pillar 2 must be partially co-financed by Member States and/or regional administrations.

The EU currently allocates over 3.5 times as much funding to Pillar 1 as to Pillar 2, but the balance varies greatly in different Member States. At present, Pillar 2 is by far the largest potential source of EU funding for nature conservation management of farmland, but the allocation and targeting of funds to environmental land management versus other rural development priorities varies greatly between Member States.

A more detailed description of the measures and rules of the CAP is included in [annex 3 and in the Background Report 2](#). In this section we only highlight the main issues of relevance for the management of farmland in Natura 2000.

[Note – The legislative proposals for the reform of the CAP were published in October 2011. It is expected that agreement on the final legislation will be reached sometime in 2013, to come into force from 1 Jan 2014. This document refers to some of the proposals that appear to have a good chance of being accepted, but it should be noted that all aspects of the proposals are still open to debate, and in particular the Pillar 1 proposals may still be significantly altered.]

4.5.1 CAP Cross compliance

It is important to distinguish measures that are obligatory to all farmers that receive payments from the CAP from those that are applied by farmers on a voluntary basis. Among the obligatory measures, the cross-compliance rules apply, since 2007, to both the beneficiaries of Pillar 1 and 2 environmental farmland management payments.

Farmers must comply with Statutory Management Requirements, which *inter alia* include Articles from the Birds and Habitats Directives that mandate the preservation and maintenance of a sufficient diversity of habitats for wild birds; conservation and protection measures in Natura 2000 sites; and the protection of wild birds and wild plants and their breeding and habitat sites.

Farmers receiving CAP direct payments must also observe minimum standards for 'Good Agricultural and Environmental Condition' (GAEC). The EU legislation defines a framework within which Member States must define verifiable standards for all farmland receiving CAP payments, appropriate to the area's characteristics. Member States are required to design their GAEC standards in ways that reflect local conditions. Some have chosen to include national legislation as a GAEC standard, and some have implemented GAEC standards on stocking rates (eg. UK, France, Spain and Greece), and on maintenance of landscape features (France).

The Commission's CAP legislative proposal for the next CAP period (2014-2020) includes proposed GAEC standards that allow Member States to introduce measures for avoiding invasive species and pests, and to protect wetland and carbon rich soils including a ban on first ploughing⁴⁵. The latter could be very important in future for protecting Natura 2000 habitat areas that lie outside designated Natura 2000 sites. For example, in four federal German states more than 6000 ha of fen or bog grassland on peat soils were converted to maize cultivation between 2005 and 2007 (Nitsch et al, 2012).

⁴⁵ Annex II of European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy. COM(2011) 628 final/2. 19-10-2011.

The permanent pasture rule⁴⁶ obliges Member States to ensure that their ratio of permanent pasture to total agricultural area does not reduce, compared to their reference ratio as set in 2005. Permanent pasture is defined as land used to grow grasses or other herbaceous forage (naturally or sown) that has not been included in the crop rotation for 5 years or more, but this can include grassland reseeded with ryegrass or forage crops such as alfalfa. If the national or regional share of permanent pasture is found to be decreasing significantly, national authorities should impose measures to stop the decline, for example by obliging farmers to maintain the share of permanent pasture on their holding or get prior authorisation for ploughing (or to restore it in the worst cases).

For the new CAP period (2014-2020) the Commission has proposed that the 'greening' requirements would oblige all farmers receiving direct payments (except small farmers) to maintain at least 95 per cent of the permanent grassland that was on their farm in 2014. The proposed 'greening' requirement for farmers to maintain their permanent grassland has caused a lot of debate amongst Member States and European politicians. Part of it centres on suggested revisions to the definition of permanent pasture (see **jError! No se encuentra el origen de la referencia.**). This requirement could contribute to the protection of Annex I grassland habitats that lie outside protected areas, or it could provide a perverse incentive for farmers to fertilise or plough up these grasslands before 2014 so that they do not count as permanent grassland under the new measure.

The Commission's CAP legislative proposal for the next CAP period (2014-2020) also includes a proposed GAEC standard that allows Member States to introduce measures for protecting wetland and carbon rich soils including a ban on first ploughing⁴⁷.

The Commission has proposed an addition to the definition of permanent pasture as including "other species suitable for grazing provided that the grasses and other herbaceous forage remain predominant"⁴⁸. This means that semi-natural grassland with a low density of scrub and heath could be eligible, but it would still exclude the use of shrubs and trees for forage, or other uses of rough vegetation such as for litter⁴⁹. Very extensively managed areas of rough grazing with predominantly non-herbaceous forage, such as densely vegetated heathland or blanket bog, would still be excluded from qualifying as permanent grassland eligible for CAP payments, as this would greatly expand the amount of utilisable agricultural area on which CAP payments might be payable. Alternatively, semi-natural pastures could be defined separately from permanent pastures, provided that an acceptable mapping methodology is found.⁵⁰

⁴⁶ Article 6(2) of Council Regulation (EC) No 73/2009 of 19 January 2009 and Art.3 and Art.4 of Council Regulation (EC) No 1122/2009

⁴⁷ Annex II of European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy. COM(2011) 628 final/2. 19-10-2011.

⁴⁸ Article 4 of COM(2011) 625/3.

⁴⁹ European Forum for Nature Conservation and Pastoralism (1 June 2012) initial response to the Commission Services concept paper on greening of 11 May 2012.

⁵⁰ European Forum for Nature Conservation and Pastoralism (July 2012) response to the Commission Services concept paper on greening of 11 May 2012

4.5.2 CAP Pillar 1 Single Farm Payment

Low and medium intensity grazing systems in the EU are highly dependent on Pillar 1 direct income support payments for their economic viability (Osterburg et al, 2010), and Pillar 1 payments are often needed alongside Pillar 2 agri-environment management payments if farming is to be maintained in areas with extensively managed semi-natural habitats (Oñate et al, 2007; Poláková et al, 2011). In the new Member States these payments play an important role in maintaining agriculture on land that would otherwise have been abandoned. Whereas the agri-environment payment will cover the additional costs and income foregone associated with the specific agricultural management carried out for biodiversity, income support payments can help ensure the basic viability of farms with these habitats in remote, often economically lagging areas. Avoiding abandonment in these areas is particularly important, because these farms still retain the traditional farming knowledge and skills handed down over generations and that are adapted to the local ecosystems. In these situations the cessation of farming would risk an irretrievable loss of such farming skills.

However, in a number of Member States substantial areas of Natura 2000 habitat are currently deemed ineligible for direct payments under the CAP. For example, in Bulgaria two thirds of the 1.6m ha of HNV farmland is not eligible because of either non-compliance with 'good agricultural condition' in 2007; too small size of holdings; or other corrections by national authorities (Poláková et al, 2011). In Romania, an estimated 1.9 million small-scale farmers (45% of all holdings) are excluded from SAPS because they farm less than 1 hectare (Redman, 2010). Large areas of unenclosed grazing land (usually common land) are not registered for direct payments (Nori and Gemini, 2011).

Eligibility issues are often related to the presence of trees, shrubs and scrub on grassland, features which are characteristic of the biodiversity value of these grasslands (see section **¡Error! No se encuentra el origen de la referencia.** for more details and examples of ineligibility). Some valuable agri-environment schemes, for example the schemes designed for wooded semi-natural habitats in Estonia and Sweden, with an important element targeting Natura 2000 sites, have been put in place largely as a reaction to the ineligibility of such habitats for direct payments under Pillar 1 (King, 2010). Given that the agri-environment budget is already overstretched, and has multiple objectives to deliver on, it would be useful to resolve the eligibility issues, and enable farmers in these areas to receive direct payments rather than to have to introduce additional measures under Pillar 2.

In Germany, various grassland and heath areas under nature conservation management are still deemed ineligible for Pillar 1 payments because they are not considered to be under (productive) agricultural management (DVL & NABU, 2009).

The European Court of Justice (ECJ) ruled in 2010 that land where the overriding objective is landscape management and nature conservation (including heathland) should not be excluded from Pillar 1 payments if there is an agricultural activity such as sheep grazing⁵¹.

⁵¹ European Court of Justice decision in Case (C-61/09).
<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62009J0061:EN:HTML>

The ECJ ruled that the ‘classification as ‘arable land’ or ‘permanent pasture’ and, consequently, as ‘agricultural area’, depends on the actual use of the land in question. Thus, an area must be classified as agricultural where it is used as arable land or permanent pasture within the meaning of Article 2 points (1) and (2) of Regulation No 796/2004.

For the new CAP period (2014-2020) the Commission has proposed that 30 per cent of Pillar 1 national ceilings for direct payments (outside those allocated for small farmers) are allocated as a ‘greening payment’. Under this proposal all eligible farmers claiming direct payments will be required to follow three ‘agricultural practices beneficial to climate and the environment’ in order to receive their full direct payment, including the greening portion (except organic farmers, who would automatically qualify). The three practices are crop diversification for arable land, maintenance of permanent grassland, and Ecological Focus Areas (EFA) on both arable and permanent crop land. Potentially the most important impact of the Pillar 1 greening proposal is that it will effectively raise the base or reference level of environmental management expected on all EU farms (Allen et al, 2012). Therefore all agri-environment schemes will have to be adapted to complement the measures required under Pillar 1 greening and recognise the raised reference level from which they operate as the baseline for agri-environment-climate payments (see section 4.5.6).

Of the three measures, the EFA measure, if designed and implemented correctly, has perhaps the greatest potential for meeting climate and environmental objectives (Allen et al, 2012). The EFA measure, as defined in the Commission proposal and subsequent communications, requires all farmers to allocate at least 7% of their eligible area (excluding permanent grassland) for ecological management, such as fallow land, terraces, landscape features, buffer strips and afforested areas. This could mean that more habitat is made available for Natura 2000 species in mixed and arable farmland outside Natura 2000 sites. This could substantially improve the habitat value and permeability of intensive arable areas (Dänhardt et al, 2010; Gilbert-Norton et al, 2010; Smith et al, 2010), but it could also penalise mixed farms with small areas of arable that are valuable for biodiversity (Allen et al, 2012), incentivising such farms to become all-grass. However, how much additional good quality habitat is made available will depend on what proportion of EFA is short-term fallow, what other types of area and feature are protected, whether they are managed for biodiversity, and how they are distributed at the local and landscape scale (Allen et al, 2012). EFA would still not include habitats that do not qualify as eligible agricultural land.

BOX X . Problems with interpretation of cross compliance rules and eligibility issues

There are currently major inconsistencies between Member States in the way they have interpreted GAEC rules and other Commission guidance in order to determine whether pastures with shrubs and trees are eligible for CAP payments. This is having some negative impacts on Natura 2000 habitats.

The GAEC requirement to prevent the “encroachment of unwanted vegetation” has in some places provided an incentive to clear pastures of patches of shrubs or scrub (Birdlife International, 2009b; Cumulus Consultants, 2011; Hart and Baldock, 2011; King, 2010). Some grassland is now mown rather than grazed, which can have detrimental impacts on biodiversity in some habitat types which have been traditionally grazed. For example, in Estonia, France, Germany, and the Czech Republic, farmers are cutting or crushing grass and leaving the cut grass to mulch, reducing plant species diversity by smothering the regrowth (King, 2010). Farmers may also cut the grass during the flowering period.

Many pastures are most valuable for biodiversity when they consist of mosaics of open grazed grassland with scatterings of shrubs and/or trees or other landscape features such as patches of unmown grass, walls, rocks, rush or wet areas, or because they are woodland pasture systems (Bergmeier et al, 2012). These rules about eligibility have therefore had a significant impact on Natura 2000 habitats (Beaufoy et al, 2011b). Some Member States have excluded large areas of pastures from Pillar 1 payments on the basis of GAEC requirements and other rules (see **¡Error! No se encuentra el origen de la referencia.**).

The Commission guidance that disallows land with more than 50 trees per ha⁵² also causes problems, and this guidance is currently being revised to try to clarify these issues. Different interpretations of the EU definition of permanent pasture have also played a role, and this definition is also currently being revised as part of the CAP reform (see **¡Error! No se encuentra el origen de la referencia.**).

Rules on including landscape features such as shrubs, trees or hedges as part of the area eligible for direct payments are also causing problems (DVL and NABU, 2009; Oppermann, 2009). For example, features that are more than 4m wide (or more than 2m wide if internal to the parcel) have to be excluded from the eligible area⁵³. Member States have the option of allowing landscape features, such as hedges of any width, to be counted in a farm's eligible area if they inform the Commission that such features are explicitly treated as "landscape features" which a farmer must retain under GAEC, as Ireland has done for example, but many other Member States have not (Beaufoy et al, 2011a). For example, the UK excludes a range of environmental features such as hedges from the eligible area. If landscape elements more than 0.1 ha in area are part of the eligible area they are supposed to be mapped and digitalized in the Land Parcel Identification System (LPIS) for control purposes⁵⁴. This is very difficult to do for dynamic features such as shrubs on extensively grazed pastures (DVL & NABU, 2009). Even if the farmers and shepherds try to map them with a lot of effort, their location and/or area will have changed by the time of an audit.

It is also important to note that many of these features and areas that Member States currently exclude from the eligible area for CAP direct payments are considered part of the area eligible for agri-environment payments under Pillar 2. It would make sense to harmonise the definitions of eligible hectares used in the two Pillars of the CAP, but if these features and areas were to be included in the direct payment area they would have to be recorded in some way for control purposes (Allen et al, 2012).

In contrast, some Member States have taken a broad approach, and include large areas of actively-farmed pastures with scrub and trees in their eligible areas. The UK includes most areas of heathland in its LPIS and considers it eligible for Pillar 1 payments so long as the vegetation is not too thick for grazing animals to penetrate (DVL & NABU, 2009). France explicitly allows areas of low productivity as eligible forage if they show a resource of grass, shrubs or fruit (chestnuts, acorns) that are consumable, accessible and actually grazed/browsed by the flock, including extensive and rough grazing, moorland, and woodland (including those with more than 50 trees per hectare) (Beaufoy et al, 2011a). In Spain, there are specific LPIS categories for pasture with scrub and pasture with trees; for example, approximately 40% of all farmland eligible for Pillar 1 support in the region of Castilla y Leon is in one of these two categories (Beaufoy et al, 2011b).

⁵² Commission recommendation that a parcel with more than 50 trees per hectare should be considered ineligible "as a general rule"

http://marswiki.jrc.ec.europa.eu/wikicap/index.php/ETS_specific_inspection_examples_2011

⁵³ Article 34 of Council Regulation (EC) No 73/2009 of 19 January 2009, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:316:0065:01:EN:HTML>

⁵⁴ http://marswiki.jrc.ec.europa.eu/wikicap/index.php/Area_measurement

4.5.3 CAP Pillar 1 Article 68 for National Envelope programmes

Article 68 payments can be a useful way of providing extra support for economically vulnerable types of livestock farming which maintain semi-natural habitats (IEEP & Alterra, 2010). The payments could help to prevent intensification or marginalisation, particularly in upland and mountain areas, and maintain grazing on Natura 2000 sites, although Member States have generally not set any environmental criteria for farmers receiving Article 68 funds, or measured whether environmental benefits were achieved (IEEP & Alterra, 2010). Member States have mainly used the option to support the beef sector, and some support for sheep, goat and dairy, particularly in economically or environmentally sensitive areas (Pitts et al, 2010).

Examples of the use of Article 68 payments for nature conservation are schemes for extensive livestock in the Burren Natura 2000 area in Ireland (see case study in annex); for local breeds and extensive livestock in Portugal, notably on high nature value meadows and dehesas; and for extensive livestock and permanent pasture in Denmark (Hart et al, 2010). species-rich limestone grassland and Annex 1 habitat they are able to restore and maintain.

The legislative proposals for the next period of the CAP include an instrument that would enable Member States to create national envelopes in a similar way to the current Article 68⁵⁵.

4.5.4 CAP EAFRD Rural Development Programmes (CAP Pillar 2) - Introduction

The European Agricultural Fund for Rural Development (Council Regulation (EC) n° 1698/2005) provides support to achieve three core objectives (known as Axes): 1) improving the competitiveness of agriculture and forestry by supporting restructuring, development and innovation; 2) improving the environment and the countryside by supporting land management; and 3) improving the quality of life in rural areas and encouraging diversification of economic activity.

The most important measures for biodiversity are the agri-environment payments, the non-productive investments, and the Natura 2000 payments under Axis 2, which amount to about 25% of the total EAFRD spending for 2007-2013 (European Commission, 2010b). The Strategic Guidelines state that the Axis 2 measures are clearly expected to be the key means of managing the farmland in the Natura 2000 network, for delivering the EU target of reversing biodiversity decline and the closely related objective to 'preserve and develop' high nature value farming systems and traditional landscapes⁵⁶. The agri-environment

⁵⁵ European Commission (12-10-2011). Proposal for a regulation of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy. COM(2011)625/3, Title IV Chapter 1.

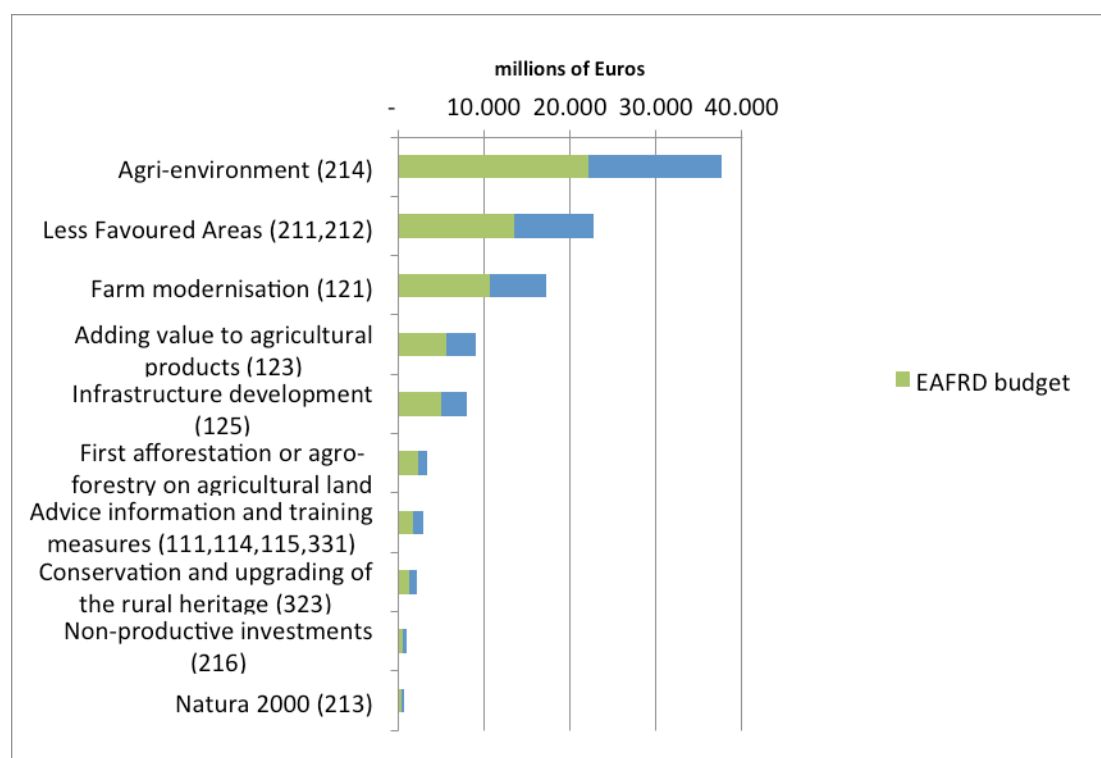
⁵⁶ "The measures available under axis 2 should be used to integrate these environmental objectives and contribute to the implementation of the agricultural and forestry Natura 2000 network, to the Göteborg commitment to reverse biodiversity decline by 2010, to the objectives laid down in Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (1), and to the Kyoto Protocol targets for climate change mitigation." Section 3.2 in

measure is the only measure Member States are obliged to implement, and it is likely that many Member States would not have set up agri-environment schemes if this had not been the case (Hart & Baldock, 2011). However, spending on agri-environment varies widely between Member States. The EAFRD also provides a range of measures to promote information and training and advisory services to farmers, which can play a very important supporting role for programmes that support agricultural management of Natura 2000 areas (see Section 4.5.13).

Figure 4.1 shows how Member States allocated their RDP budgets between some of the measures most relevant to Natura 2000 funding in the 2007-2013 funding period.

Figure 3.1 Anticipated public spending for selected Pillar 2 measures in EU-27 in 2007-2013

Source: IEEP own calculations based on DG Agriculture data updated in March 2011 (including Health Check funds), as published in (Poláková et al, 2011)



In many Member States, large areas of Natura 2000 grassland or scrub habitats that require extensive grazing are classified as forestry land. For example, in Spain permanent pastures are mainly classed as “monte” or forest land; over 19 million hectares are used for livestock grazing, mostly as common land (Beaufoy et al, 2011b). Therefore this section also refers to the Pillar 2 measures that can be used on forestry land.

The Commission’s CAP reform proposal attempts to provide a new structure that is more streamlined and flexible for Member States to implement. It contains similar core objectives (with the addition of climate action to the second objective), but adds six priorities for

Council Decision of 20 February 2006 on Community Strategic Guidelines for rural development (programming period 2007 to 2013) (2006/144/EC)

action (of which two directly refer to the environment⁵⁷) plus eight areas of environmental focus⁵⁸. It will then be possible to use any of the policy measures to deliver against any of the priorities or focus areas. The proposed Article 5(4)(a) makes explicit reference to “restoring and preserving biodiversity, including in Natura 2000 areas and high nature value farming, and the state of European landscapes”⁵⁹. The European Commission’s proposal⁶⁰ also simplifies and regroups some of the current measures, and introduces several changes and new measures, including measures to promote innovative approaches, extending the scope of the Natura 2000 measure, and a new measure for co-operative projects separate from the LEADER approach.

As regards the potential use of EAFRD measures to support management of farmland in Natura 2000, it is important to consider the local conditions and to analyse which measures are best adapted to support the conservation objectives in each area. It is also very important to combine the different measures so as to ensure that sufficient support is provided to extensive and HNV farming systems. For instance, natural handicap (LFA) measures can be combined with more targeted agri-environment measures in certain areas (eg. see case studies from Czech Republic and Hungary in annex).

4.5.5 CAP EAFRD natural handicap / constraint measures (LFA)

The natural handicap measures (measures 211 and 212 in the current EAFRD), formerly called Less Favoured Area (LFA) payments, provide crucial support for the maintenance of extensive livestock grazing systems, which are of fundamental importance for many key agricultural habitats and species (as shown in Chapter 3). For example, in Italy most of the low productivity alpine grazing is publicly owned, and the local municipalities use LFA payments to support the traditional transhumance systems of extensive grazing (ETC/BD, 2008c). The measure also provides important socio-economic support for disadvantaged rural areas, and therefore a number of Member States target a large proportion of their RDP budgets to this measure (including Austria, Finland, France, Ireland, Italy, Luxembourg, Slovakia and Slovenia). More than half of Poland’s farmland receives LFA payments, and overall, more than half of the farmland in the EU has been classified by Member States as LFA. The use of the LFA measure is considered to send an important message about the social value of farming in these areas and highlight a societal commitment to their economic viability (Poláková et al, 2011).

⁵⁷ Priority 4) “Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry”; priority 5) “Promoting resource efficiency and supporting the shift towards a low-carbon and climate resilient economy in the agriculture, food and forestry sectors”.

⁵⁸ Covering biodiversity, including HNV farming, Natura 2000 and European landscape; water management; soil management; water use efficiency; energy use efficiency; renewable sources of resources; nitrogen emissions; carbon sequestration.

⁵⁹ Article 5(4)(a) “restoring, preserving and enhancing ecosystems dependent on agriculture and forestry, with a focus on the following areas: restoring and preserving biodiversity, including in Natura 2000 areas and high nature value farming, and the state of European landscapes; (b) improving water management; (c) improving soil management”. In European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2.

⁶⁰ European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

Under the legislative proposals for the next period of the CAP, payments for farmers in areas with natural constraints (LFA) would be determined nationally using EU-defined criteria, set within the range €25 to €300 per ha per year, and would be degressive for farms above a certain size⁶¹.

The substantially revised proposal for payments for areas facing natural or other specific constraints (Article 32) for the new CAP period includes new biophysical criteria for defining areas subject to constraints⁶². Mountain areas are to be defined by the existence of very difficult climatic conditions which substantially shorten the growing season because of altitude, or by existence of slopes that are too steep for non-specialised machinery over most of the area, or because of being north of the 62nd parallel. Other areas can be defined as facing constraints if at least 66% of the UAA meets the thresholds of one or more of a list of climate, soil and terrain criteria constraining production⁶³ (Van Orshoven et al, 2012), but must exclude land within these areas where agricultural investment has overcome the constraints. Member States will also be able to define other specific areas under constraints where land management should be continued in order to conserve or improve the environment, maintain the countryside, preserve the tourist potential, or protect the coastline. However, the new criteria mean that some current LFA areas will no longer qualify under the proposed new CAP regulation, and this is currently an issue of debate.

The LFA payments were originally linked to numbers of livestock or area of crops, but are now paid on a per hectare basis, mostly without specific management requirements; therefore farmers generally see the LFA payment as a form of CAP income support. Some Member States have chosen to replace the LFA measure with more targeted agri-environment schemes (for example, in England and Wales).

4.5.6 CAP EAFRD Agri-environment payments

Agri-environment payments (measure 214 in the current EAFRD) should support land management that protects and improves the environment, countryside, landscape, and natural resources. This measure also provides support for the conservation of genetic resources (see section 4.5.12) and organic farming (see section 4.3.5). Agri-environment policies offer farmers annual payments in return for providing, through multiannual commitments, an environmental management service by following clearly defined management practices. These practices produce a specific environmental benefit above and beyond the level of protection already provided by environmental regulation and cross-compliance. Participation is voluntary. In order to receive the payment, farmers must sign a

⁶¹ COM(2011)625/3, Title III Chapter 3 and COM(2011)627/3 Article 32

⁶² Article 33 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

⁶³ Annex II in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

management contract with a managing body, usually for five to seven years. The contract specifies the farm level management requirements⁶⁴.

Agri-environment measures may be designed, targeted and delivered at the national, regional or local level. This flexibility allows Member States to reflect the great variety of local bio-physical, climatic, environmental and agronomic conditions on different farms and in different European regions (OECD, 2010). Member States have developed a wide range of different agri-environment schemes, not just in response to different environmental priorities and pressures, but also in response to societal preferences, institutional arrangements and financial and political pressures (Farmer, 2011).

The biodiversity benefits of agri-environment schemes therefore very much depend on whether each Member State's funding objectives give direct priority to biodiversity or not (Farmer, 2011). Some Member States use quantified biodiversity targets to underpin their schemes; others use more qualitative approaches. Some Member States clearly divide their agri-environment schemes into “broad and shallow” entry-level schemes designed for maximum uptake by a large proportion of farmers, and “deep and narrow” higher-level schemes designed for uptake by farmers managing land with particular biodiversity value, and this allows for clearer evaluation of the impacts (European Court of Auditors, 2011a).

The addition of climate to the agri-environment measure in the CAP reform proposal is a significant change, signalling a commitment to support for agricultural management practices contributing towards climate change adaptation and mitigation, which may become even more significant if the EU adopts rules for accounting for emissions from land use, land use change and forestry. Other changes include a new emphasis on group applications from farmers and other land managers, accompanied by more generous transaction costs of 30 per cent, which will help to facilitate landscape scale interventions for biodiversity - provided that Member States use these. Many managing authorities do not currently add transaction costs for agri-environment payment calculations, despite evidence that this can affect uptake (Keenleyside et al, 2012).

The agri-environment measure is the most important policy mechanism for conserving biodiversity on agricultural land in the EU. The schemes also maintain and enhance the functional connectivity of agricultural land (Donald and Evans, 2006). Well-designed and targeted agri-environment schemes, containing options designed to reverse the causes of wildlife loss, can have quick and dramatic impacts on wildlife numbers (RSPB & Birdlife International, 2011).

A number of Member States have agri-environment schemes that are tailored to Natura 2000 habitats or High Nature Value farmland areas with Natura 2000 habitats and species (see Boxes 4.4 and 4.5). In some Member States, agri-environment schemes provide important support for HNV farming practices (EC, 2009), and thereby help to prevent abandonment of extensive farming systems. For example, Spain supports its traditional extensive arable-sheep farming system through an agri-environment scheme (Caballero and Fernández-Santos, 2009). However, some States (such as Greece, France and most of Spain)

⁶⁴ Recipients of agri-environment payments must also comply with requirements on the use of fertilisers and plant protection products which Member States must define (as required by Article 39(3) of Regulation 1698/2005)

currently spend little of their EAFRD budget on agri-environment (Boccaccio et al, 2009). The schemes need to be balanced to respond to both the needs of biodiversity in the whole farming landscape, and the rarer habitats and species of Community Interest.

The success of agri-environment schemes depends on the provision of support for farmers including advice and training, and sufficient institutional capacity to monitor outcomes and enforce compliance if required. Schemes are more successful if they are designed with participation of the farmers themselves, and use farmer's knowledge in the design (eg see [case studies from Germany, Czech Republic, Romania and Estonia](#)).

Payment rates may sometimes provide insufficient incentive for the maintenance of economically unviable farming systems. Agri-environment payments cover additional costs and income foregone as a result of the commitment, but the way this formula is used does not address the case of farms with very low farm incomes, particularly HNV upland livestock farms, that are already delivering a high level of environmental management, but which have no income to forego and where there may be no need to change the farming system and thus incur additional costs. Without agri-environment payment rates that also take account of the labour costs and fixed costs of the farming system, the economically realistic choice for these farmers is to abandon farming. Member States could make more use of the flexibility in the trade rules underlying this formula to reflect the full cost of continuing HNV farming where there is a proven risk of abandonment or intensification (Barnes et al, 2011; RSPB & Birdlife International, 2011)

Some agri-environment schemes aimed at maintaining biodiversity-rich habitats or particular species are paying farmers upon delivery of results, whilst leaving flexibility for farmers to decide the type of management needed (see eg. [case study from Ireland](#)). Payment by results works well for habitat types and species where an easily-monitored result is directly related to the overall status of the habitat, and management flexibility brings both advantages for farmers and cost-effective nature conservation. Payment by results has however presented challenges for Commission auditors responsible for verifying compliance and payment formulas (European Court of Auditors, 2011b). Compliance issues can also pose difficulties for national authorities and possibly give rise to an elevated error rate. Moreover, this type of measures also means a higher risk for farmers, even if it may offer them more flexibility, given that the environmental results depend on many factors, including external ones non dependant on farmers' acts. It is not realistic to have a scheme that specifies both management practices and results, as this would require double the monitoring and compliance checking effort. The schemes need to be well-designed and attract a high enough level of uptake. It is also important that the scheme does not offer too high a level of risk for the farmer, ie that if the farmer follows certain management practices he or she is likely to obtain the required result. **Box 4.6** discusses the impacts of some payment by results schemes.

Box 4.4: Successes in tailoring agri-environment measures to Natura 2000 habitats

Sources: IEEP & Alterra, 2010; Poláková et al, 2011; RSPB & Birdlife International, 2011 and Natura 2000 farmland management case studies (see also annex)

Romania – HNV meadow management. The scheme includes requirements for the use of traditional manure, no use of chemical fertilisers, collections of mass cuttings within 2 weeks after mowing, restrictions on grazing in flooded pastures; an additional payment is available for the ‘maintenance of traditional practices’ (involving a prescription to use manual mowing only) (ENRD, 2010a; Gütthler and Oppermann, 2005; Riccheri, 2006). The scheme enables the maintenance of the traditional landscape pattern of mosaic management of hay meadows, with a variety of mowing dates, which is ideal for diverse animal and plant communities to thrive.

Slovakia – management of semi-natural pastures and meadows. Agri-environment schemes for the protection of semi-natural and natural grassland involve management tailored to seven types of grassland (dry grasslands, mesic grasslands, mountain hay meadows, wet grasslands of lower altitudes, alluvial *Cnidion* grasslands, wet grasslands of higher altitudes, fen and *Molinia* meadows, high-mountain grasslands) that are recognised within the National Grassland Inventory as semi-natural (based on diagnostic species). Management prescriptions include mowing between specified dates, shepherding without the use of fences, a prohibition on drainage and no mulching. Grazing is prohibited on fen and *Molinia* meadows. On lowland alluvial meadows and on mountain hay meadows grazing is allowed after the first cut. More than 102,000 ha of semi-natural grassland are now funded by agri-environment measures (17 million EUR per year).

Spain – maintenance of ‘dehesas’. The agri-environment schemes implemented in Extremadura, Castilla-La Mancha and Andalucía (and Castilla-y-Leon under ‘forest environment’) include management requirements for no or limited cereal/leguminous/ fodder cropping (common in more intensively managed parts of ‘dehesas’), stocking densities of between 0.1 and 1.0 LU/ha and other restrictions to avoid over-grazing, to ensure the maintenance of landscape features (eg stonewalls), to maintain or increase tree density (*Quercus*, *Olea*), requirements for their pruning and regeneration as well as shrub management and some voluntary commitments such as grazing exclusion areas or organic cropping. The measure can be combined with another agri-environment scheme for the protection of local breeds – pig, cattle, sheep and others -- which traditionally support the Dehesa habitats, and organic rearing of livestock. (Ecologic, 2006b; Rauschmayer et al, 2009; SEO and Birdlife International, 2011)

Sweden – Natura 2000 pasture management. Sweden offers measures for pastures with specific values, such as limestone pasture, mountain pasture, hay meadows, and wetlands, applicable to several types of Natura2000 habitats. Other schemes have been designed for wooded pastures. The schemes encourage the continuation of low-input management appropriate for these habitats, with requirements involving grazing and harvest management, ban on use of pesticides, and limits on rotational ploughing.

UK – common grazing of wet heathland. Bringing common land into an agri-environment scheme is often difficult but in Wales (UK) the 16 commoners grazing sheep on 800 ha of a heathland Natura 2000 site have a 5 year agri-environment contract to increase cattle grazing levels during the spring and summer, with the aim of suppressing bracken and grazing the coarse vegetation which has begun to dominate the wet heath. Sheep numbers are limited in winter, to prevent over-grazing, and the non-productive investment measure has been used to clear bracken and scrub for habitat restoration.

Box 4.5: Successes in tailoring agri-environment measures to Natura 2000 species

Sources: (Poláková et al, 2011; RSPB and Birdlife International, 2011), Liga para a protecção da natureza (LPN) personal communication; Natura 2000 farmland management case studies (see slo annex),

France – fodder crops for Little Bustard (*Tetrax tetrax*). Since a targeted agri-environment scheme was introduced to the Poitou Charentes region in 2004, the area has seen numbers of little bustard begin to bounce back. The scheme aims to tackle the two major causes of the bird's decline: nest destruction and starvation. Options include conversion from annual crops to fodder crops and grassland; restrictions on cutting alfalfa fields; and ban on insecticides and herbicides.

Portugal – extensive cereal pseudo-steppe for the Great Bustard (*Otis tarda*) and other steppe birds. The Castro Verde Zonal Programme agri-environment scheme supports farmers for maintaining traditional rotational cereal farming practices, and promotes the reduced use of insecticides and herbicides and low grazing levels. As a result the population of the Great Bustard (*Otis tarda*) in the area has doubled. Populations of the lesser kestrel (*Falco naumanni*) and Little Bustard (*Tetrax tetrax*) have also improved. This is despite the fact that the payment rates are insufficient to compensate farmers for the constraints on management activities.

Slovenia - conservation of meadow orchards and associated birds. The scheme supports the pruning and replanting of trees (min 50, max 200 trees/ha); restrictions on pruning dates for the established trees; grazing of species-rich pasture under the trees with restricted stocking densities; and limits to plant protection products and fertiliser application. Annex I species that benefit from traditional orchards include Little Owl *Athene noctua*, Hoopoe *Upupa epops* and Wryneck *Jynx torquilla*.

United Kingdom (England) – grassland management for the Marsh Fritillary butterfly (*Euphydryas aurinia*). Populations of the Marsh Fritillary butterfly, that had become almost extinct in large parts of Europe due to the loss of damp and chalk grasslands, have stabilised or are increasing as a result of implementing a targeted agri-environment scheme. The scheme funds management options that create an uneven patchwork of short and long vegetation on damp chalk grassland, using extensive grazing by cattle or traditional horse breeds, and selective mowing and scrub removal.

Box 3-6 Pay by results schemes for Natura 2000 species or habitats

Sources: (Matzdorf and Lorenz, 2010) (Verhulst et al 2007) (Güthler & Oppermann, 2005)

Germany, Baden-Wuerttemberg – lowland hay meadows scheme

Lowland hay meadows need a certain amount of fertilisation with manure to maintain their productivity, but it is not feasible to specify the precise amount that will maintain productivity whilst retaining the characteristic hay meadow species community and habitat value, as this varies from field to field (Güthler & Oppermann, 2005). Fertilisation practices can be quite varied, including the season of application, or whether manure is applied every year or only some years. Similarly, the first cut can take place at different dates according to weather and location without detrimental effects on biodiversity, and some meadows can be grazed after cutting. This agri-environment measure therefore gives farmers the opportunity to adapt management locally, provided this does not negatively affect the plant community of the grassland. Farmers can apply for this scheme in addition to the basic extensive grassland management scheme. In order to receive the payment, farmers have to find at least four different indicator species on their grassland each year, from a list with 28 indicator species which are adapted to the specific site conditions and have proved to be reliable indicators of species-rich, cultivated grassland. These species are easily recognizable so that farmers can find and identify them every year on their own. In 2005, 65,959 ha of hay meadows on farms ranging from 1 ha to 250 ha were registered in the scheme. The scheme was shown to increase farmer motivation and engagement with nature conservation, but also showed that some farmers lacked understanding that the scheme is not designed to conserve the four species per se, but that these are indicators of extensive management or species-rich grassland and, consequently, allow a simple control.

Netherlands - breeding waders scheme

This scheme pays farmers per clutch of breeding waders without restricting their farming practices on wet meadows. The scheme is coordinated by an agri-environmental cooperative. Some farmers in the cooperative combine the scheme with an agri-environmental scheme specifying late mowing on some fields, some only sign up for the results-oriented scheme. Farmers or volunteers note the locations of all clutches on a map and members of the collective check the presence of the clutches twice per season. Payment is based on the number of clutches adequately protected against agricultural activities. The birds include redshanks (*Tringa tetanus*), oystercatcher (*Haematopus ostralegus*), lapwing (*Vanellus vanellus*) and black-tailed godwit (*Limosa limosa*). An evaluation of the scheme found more breeding waders in the fields under the scheme, however this may be primarily due to the groundwater level, rather than mowing or fertiliser practices. Individual farmers can lower groundwater levels to some extent and fields differ in height above surface water level, and farmers preferentially selected the more suitable fields for the scheme.

4.5.7 CAP EAFRD Natura 2000 payments

Natura 2000 payments for agricultural and forestry land (measures 213 and 224 in the current EAFRD) are designed to compensate for costs incurred and income foregone as a result of the management needed because of the designation of an area as a Natura 2000 site, and the associated imposition of restrictions on agricultural (or forestry) activities.

Conditions for payments for agricultural land include income foregone and/or costs incurred, eg. due to limits to fertilisation, limits to stocking density, limitation of grazing and mowing frequencies, prohibition of ploughing up grassland, or renunciation of drainage and afforestation activities (Hrabalová et al, 2007).

Payments are dependent on formal designation of the Natura 2000 site, and the existence of a management plan or equivalent legislation that specifies the management actions that farmers are legally required to carry out to contribute to restoring and maintaining that site's favourable ecological status. In [the CAP reform draft legislation, farmers in Natura 2000 areas will only be entitled to these compensation payments if the Member State or region has chosen to implement this measure in its RDP.](#)

The measure also applies to costs incurred and income foregone as a result of regulations implemented under the Water Framework Directive. Member States cannot make these payments until their River Basin Management Plans have been approved and implemented, and farmers are bound by agreements or management plans that specify the management actions required.

[The proposed new EAFRD regulation contains some changes to the measure \(article 31 in CAP proposal⁶⁵\) to try to simplify it and encourage its use. Land managers who are not farmers will be eligible for payments if justified. Payments will also be possible on wildlife "stepping stones" between Natura areas in order to contribute to the implementation of Article 10 of the Habitats Directive.](#)

The Natura 2000 measure can be combined with agri-environment and non-productive investment measures to ensure that sufficient support is provided to extensive and HNV farming systems. However, the use of the Natura 2000 measure has been very limited in many Member States, accounting for only 0.5% of the current RDP spending in the EU as a whole. Only a few Member States allocated significant funding to this measure in their RDP budgets for 2007-2013, and by 2009 only Germany, the Czech Republic, Estonia, Lithuania and Latvia had reached their targets⁶⁶. Ireland also allocated funds but had not reached its target. This is partly because many Natura 2000 sites do not yet have defined management requirements, which means that Member States have not been able to release any payments under this measure (European Commission, 2010b). For example, Poland's current RDP includes the option of direct Natura 2000 payments, but its implementation is postponed until the management plans are prepared and the real economic costs and limitations for the management can be calculated (CEEweb, 2011).

A number of Member States prefer to use the voluntary agri-environment measure to fund management on Natura 2000 sites, as these schemes have already been set up, are not dependent on a site management plan, and offer more flexible funding. Some Member

⁶⁵ Article 33 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

⁶⁶ European Network for Rural Development (2011) Rural Development Programmes 2007-2013 Output Indicators realised 2007-2009. Measure 213: Natura 2000 payments and payments linked to Directive 2000/60/EC (WFD) (updated June 2011). http://enrd.ec.europa.eu/policy-in-action/rural-development-policy-in-figures/rdp-monitoring-indicator-tables/output-indicators/en/output-indicators_en.cfm

States have expressed concern that the Natura measure would pay farmers to follow specifications for Natura 2000 sites that are already mandatory, as defined in their national legislation.

4.5.8 CAP EAFRD Non-productive investments

The non-productive investment measure (measure 216 in the current EAFRD) can be used to achieve agri-environment objectives and “enhance the public amenity value of a Natura 2000 area”⁶⁷. It can cover up to 100 per cent of the cost of environmental investments such as the restoration or establishment of hedges, fences, walls and other structures which have an environmental benefit but little or no productive purpose and so are unattractive economically for farmers. The measure is used widely alongside the agri-environment measure, and many agri-environment scheme actions are funded through both measures.

The measure provides important funding for habitat restoration work on Natura 2000 land, including that required at the start of an agri-environment contract, in order to make it possible to carry out annual management such as grazing. Investments can include;

- Scrub management and removal
- Restoration of traditional farmland structures, such as terraces, stone walls and sheep pens
- Restoration of wetlands, such as ponds, reedbeds, marshes, and ditches
- Restoration of traditional orchards, olive groves, and wood pastures

A review of Rural Development Programmes found that the most commonly prioritised actions have been planting and management of trees, hedges and bushes, creation and maintenance of wetlands, and actions involved in conversion of arable land to grassland (ENRD, 2010b). Important to note for Natura 2000 management is that the installation of fencing, water supply, and other necessary livestock management infrastructures can make up a significant cost for environmental grazing regimes, especially where these are being reintroduced.

In the CAP reform proposal the role of the non-productive investment is the achievement of agri-environment commitments, the biodiversity conservation status of species and habitats, as well as to enhance the public amenity value of a Natura 2000 area or other high nature value area, and it is part of a broader measure for investment in physical assets (article 18⁶⁸), which also includes the options for investment in farm modernisation and infrastructure (see section 4.6.3). The proposed new measure supporting the restoration of

⁶⁷ Article 41 of Council Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). EC 1698/2005. Official Journal of the European Union OJ L 277. 2005. 21-10-2005.

⁶⁸ Article 18 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

agricultural potential after natural disasters or catastrophic events (article 19⁶⁹), can also be used to fund habitat restoration actions, such as the reinstatement of grazing on scrubland prone to wildfire.

4.5.9 CAP support for organic farming

The CAP provides a number of measures for farmers who commit to organic farming as defined by Council Regulation (EC) No 834/2007⁷⁰, including agri-environment payments, Article 68 of Regulation 73/2009, and top-ups under the Common Market Organisation for fruit and vegetables. It is possible for Member States to combine these payments for farmers, and for farmers to “top-up” organic support payments with other agri-environment payments for specific conservation measures. Member States and regions have also introduced a wide range of other national and/or regional policy instruments not co-financed by the EAFRD or EAGF.

Organic farming is growing rapidly in the EU, and took up around 4.1% of UAA in 2007⁷¹. The area under organic agriculture is close to or higher than 9% of the total UAA in five Member States: the Czech Republic, Estonia, Latvia, Austria (15.5%) and Sweden. Organic farms have in general been shown to be more beneficial for biodiversity than comparable conventional farms, both in habitat diversity (Gabriel et al, 2006; Gabriel et al, 2010) and in long-term species abundance and richness (Taylor and Morecroft, 2009; Winqvist et al, 2011).

Organic farming is likely to play an important role for Natura 2000 farmland in those Member States that have large proportions of their permanent pasture under organic systems, including the Czech Republic (over 25%), Greece, Latvia and Slovakia (all over 15-16%), and Austria and Portugal (over 10%) (EC, 2010d). Organic farming support payments are also particularly important for the maintenance of extensive sheep and goat grazing in Mediterranean countries like Greece, Italy and Portugal. Organic farming can also be a good option for extensive cereal cropping areas where this type of farming can provide additional value to cereal production in quite marginal areas (eg. see case study from Spain).

4.5.10 CAP EAFRD Conservation and upgrading of the rural heritage

This measure (measure 323 in the current EAFRD) finances environmental awareness actions, studies and investments associated with maintenance, restoration and upgrading of the natural heritage and with the development of high natural value sites. It is also specifically designed to finance the drawing-up of protection and management plans relating to Natura 2000 sites and other places of high natural value⁷².

⁶⁹ Article 19 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

⁷⁰ Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91.

⁷¹ <http://epp.eurostat.ec.europa.eu/portal/page/portal/agriculture/data/database>

⁷² “The support referred to in Article 52(b)(iii) shall cover:(a) the drawing-up of protection and management plans relating to Natura 2000 sites and other places of high natural value, environmental awareness actions and investments associated with maintenance, restoration and upgrading of the natural heritage and with the development of high natural value sites; (b) studies and investments associated with maintenance, restoration

The measure has been broadly used in Germany to develop Natura 2000 planning, maintenance/restoration of habitats and implementation of species conservation programmes, Water Framework Directive projects and nature conservation consultation services.

A number of other Member States are using this measure to support the development of management plans for Natura 2000 sites (European Commission, 2010b). For example, in France this measure is used to finance Natura 2000 management plans, Natura 2000 contracts with non-farmer or non-forester owners, and awareness raising actions. In Finland environmental NGOs now have the possibility of getting funding under this measure for making management plans for privately owned Natura 2000 forests, and for example promoting them as ecotourism sites (Figeczky et al, 2010).

The Natura 2000 planning process has resulted in conflicts with local stakeholders in a number of Member States (Apostolopoulou and Pantis, 2009; Grodzinska-Jurczak and Cent, 2011; Keulartz, 2009; Rauschmayer et al, 2009). Most EU subsidies cannot provide the type of funding that this measure offers for enhancing or supporting participatory processes to develop management plans, and this measure could be used to a much greater extent to support the development of robust management plans for Natura 2000 sites, using participatory approaches to ensure that stakeholders support the management objectives (Boccaccio et al, 2009).

In the CAP reform proposal, the support for Natura 2000 and HNV management plans is combined with support for other activities to protect and manage natural and cultural heritage, municipal planning, investing in small-scale communal infrastructure including renewable energy, tourism and others, in a measure for basic services and village renewal in rural areas⁷³.

4.5.11 CAP EAFRD Animal welfare

The animal welfare measure (measure 215 in the current EAFRD, article 34 in the CAP proposal⁷⁴) can be used to support farm operations that provide animal welfare that goes beyond mandatory commitments, including water and feed closer to their natural needs; improved housing conditions, such as space allowances, bedding, natural light; outdoor access; absence of systematic mutilations, isolation or permanent tethering; and/or prevention of pathologies mainly determined by farming practices or/and keeping conditions.

The animal welfare measure is used by some Member States to support free grazing livestock systems, including Natura 2000 grazing. For example, Germany supports cattle on

and upgrading of the cultural heritage such as the cultural features of villages and the rural landscape.” Article 57 in Council Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) (consolidated version)

⁷³ Article 21 in in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

⁷⁴ Article 34 in in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

summer pasture including alpine meadows and cattle and pigs in loose housing stables (free stall barn) with grazing, the Emilia-Romagna region in Italy supports Parmigiano-Reggiano cheese producers grazing cattle in mountain areas, and Cataluña (Spain) provides additional support for organic livestock farmers (Zemekis et al, 2007). The animal welfare measure also supports the use of litter bedding, thus potentially providing a market for the cuttings of Natura 2000 litter meadows.

4.5.12 Instruments for the conservation of genetic resources in agriculture

Heritage and local breeds of livestock, especially cattle and sheep, are important for management of semi-natural pastures, and therefore support for their conservation and utilisation is a useful resource for Natura 2000 farmland management. Agri-environment schemes for the conservation of genetic resources are currently the most important source of funding. For example, Italy, Portugal, Germany, and Austria support a significant proportion of national breeds of cattle with measures (Nitsch, 2006). Hungary has schemes for Hungarian grey and flecked cattle, Mangalica pigs and Racka sheep which graze Pannonic salt steppes and marshes; Estonia has schemes for the Estonian native horse and the Estonian cattle breed on coastal meadows; and Slovenia supports 14 animal breeds, including Cika cattle, the Carniolan honey bee, and Jezersko-Solčava sheep grazing alpine meadows. In Bulgaria, the funding of Karakachan sheep guarding dogs is an important support for extensive grazing of Annex I habitats.

The Community Programme on the conservation, characterisation, collection and utilisation of genetic resources in agriculture (2006-2011)⁷⁵ also provided professional support for the breeding and management of heritage and local breeds of livestock. However, though extensive and organic farming systems benefitted indirectly through the focus on animal breeds and crops suitable for lower productivity systems, the projects had very little focus on utilisation in the field (Independent Expert Group, 2001). The programme is also criticised for its limited emphasis towards farmers and other end-users and insufficient capacity to involve them⁷⁶.

4.5.13 Farm advisory services, training and information provision

Member States are obliged to set up a Farm Advisory System under the EU regulation for the CAP Pillar 1, which must provide accessible advice on cross compliance to all farmers receiving direct payments, although the service can also cover other issues and provide support for the implementation of rural development measures (such as agri-environment commitments) (European Commission, 2010c).

For the next CAP period (2014-2020), the Commission is emphasizing the importance of Member States increasing their provision of information and advice through their Farm Advisory System to enable farmers to run viable businesses with a higher level of

⁷⁵ Council Regulation (EC) No 870/2004 of 24 April 2004 establishing a Community programme on the conservation, characterisation, collection and utilisation of genetic resources in agriculture and repealing Regulation (EC) No 1467/94 (Text with EEA relevance)

⁷⁶ <http://ec.europa.eu/agriculture/committees/genetic-resources/26.pdf>,
<http://www.birdlife.org/eu/pdfs/FS5-theCAPandGeneticResources-0614.pdf>
http://ec.europa.eu/agriculture/genetic-resources/survey/intro_en.htm

environmental management (Allen et al, 2012), and offers expanded possibilities for co-finance for setting up advisory services and training advisors (measure 115 in the current EAFRD, article 16 in the CAP reform proposal⁷⁷). Member States can fund farmer's use of advisory services through the CAP Pillar 2 (measure 114 in the current EAFRD, article 16 in the CAP reform proposal).

Member States can also fund vocational training and skills acquisition actions, including training, workshops and coaching, demonstration activities, and information actions provided by qualified public or private providers (measure 111 in the current EAFRD, [Article 15 in the CAP reform proposal](#)⁷⁸, which offers a new opportunity to fund short-term farm management exchange and farm visits. Member States often provide advice on agri-environment schemes to farmers through a separate organisation or private contractors⁷⁹.

The provision of advice, support and training for farmers is crucial for the successful management of Natura 2000 habitats and species, and Member States can, if they wish, prioritise support for access to the Farm Advisory System to certain categories of farmers, such as Natura 2000 farmers. On-farm visits and farmer-farmer exchanges have a particularly important role in encouraging farmers to join agri-environment schemes, and to raise their motivation and encourage creativity and innovation in management practices for conservation (see eg. [case studies from Ireland, Germany, Czech Republic, Romania Austria and Netherlands, among other, where efficient advisory systems and regular communication with farmers have been set up](#)).

According to a recent evaluation of FAS, the provision of advice did change awareness of environmental issues (water, soil and biodiversity) in farmers who received advice (European Commission, 2010c). However, cross-compliance advisors often lack training in conservation measures on farmland, and some farmers state that fears that they might be judged as contravening cross-compliance requirements stop them from implementing conservation measures (Goßler, 2009). In some Member States, concerns have been raised that the threat of loss of payments for not following cross-compliance rules has undermined farmer willingness to engage with the reasons for good environmental stewardship (ADAS, 2009). If farmers fail to be convinced by the reasons for the standards, they will comply only partly and unwillingly. Farmers also perceive the cross-compliance system as being the reason why they are being forced to make costly investments, for example to control nitrate emissions, rather than understanding it as reinforcing implementation of the underlying environmental regulations. This illustrates the importance of communication and dissemination of information on biodiversity issues to farmers in the context of their farm management as a whole, ie assessing and advising on the specific situation of the farmer, not just presenting general information about compliance (see Box 4-5 for good examples). There is also a need for effective links between research and cross-compliance implementation (Angileri, 2011).

⁷⁷ Article 16 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

⁷⁸ Article 15 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

⁷⁹ Under measure 111 in the current EAFRD

There is still a substantial unmet need for advice and support amongst farmers in the EU - in 2008 only around 5% of farmers receiving direct payments were given one-to-one advice (European Commission, 2010c). Small farmers are not being properly reached by advisory services, and locally-based organisations such as NGOs often play a critical role in bridging the gap between small farmers and advisory services (see an example from Romania in Box 4-5).

Advisors play a crucial role as a link between researchers and farmers by identifying needs coming from the farmers, assembling practical experiences, and applying knowledge from research to local situations (see Box 4-5 for good examples). Farm Advisory System coordinating bodies should play an important role in helping the advisors to network, for instance by providing the contact details of specialist advisors and saying which fields they specialise in. Water protection and the requirements of the Water Framework Directive are an important issue for farm advisory services, and a DG ENV handbook of ideas for administrations about integrating water issues in farm advisory services was well-received by farm advisors (Berglund and Dworak, 2010). Cross-border collaborations are also very valuable; for example, the Baltic States Farm Advisory Services are collaborating to develop and promote improved fertilisation methods, manure management and treatment of run-off waters in order to reduce the eutrophication of the Baltic Sea and its coastal habitats⁸⁰.

Box 3-1: Examples of Farm Advisory Services that are providing good services for farmers who manage Natura 2000 habitats and species

Source: See case studies in annex for further details.

Austria and the **German** Federal State of Rheinland-Pfalz are pioneering integrated conservation and agronomic farm advice services, which are delivering better on-farm conservation of species and habitats, especially farm-specific adaptations of agri-environment schemes and innovative voluntary initiatives.

In the Târnava Mare area of **Romania**, the NGO Fundația ADEPT Transilvania has set up a Farm Advisory Service linking biodiversity conservation, Natura 2000 habitat and species conservation obligations, and rural income support, in cooperation with local communities and the Romanian Ministries of Agriculture and Rural Development (MARD) and Environment and Forests (MEF). Its vision is to achieve biodiversity conservation at a landscape scale by working with small-scale farmers to create incentives to conserve the semi-natural landscapes they have created. The service has helped the small-scale farmers gain eligibility for CAP direct payments, helped design and promote targeted agri-environment schemes, and opened up marketing opportunities for farmers.

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http://ec.europa.eu/regional_policy/projects/stories/details_new.cfm?pay=DK&the=72&sto=2195&lan=7®ion=ALL&obj=ALL&per=2&defL=EN

4.5.14 CAP EAFRD local partnerships, co-operation projects, and producer groups

The EAFRD contains various possibilities to fund farmer action groups, or partnerships between farmer groups and other local organisations, for example local authorities or NGOs, including LEADER, producer groups, and co-operation projects. LEADER is at present the only way of combining measures from all 3 axes at the point of delivery. For example, LEADER complements agri-environment schemes and other nature conservation funding because it focuses on actions strongly rooted in local territories, engages local actors through partnerships, and funds training and innovation. In addition, the current EAFRD enables the setting up of producer groups for joint marketing of agricultural products, for developing members' businesses and marketing skills, and for facilitating innovative processes (measure 142 in the current EAFRD, article 28 in the CAP proposal⁸¹).

The CAP reform proposal contains, in addition to the LEADER approach, a separate flexible measure for co-operative projects (article 36⁸²) to promote short supply chains and local markets, and facilitate collective approaches to environmental projects and environmental practices, from a local to a transnational level. This funding can be combined with funding from other EU sources. In addition, the current EAFRD enables the setting up of producer groups for joint marketing of agricultural products, for developing members' businesses and marketing skills, and for facilitating innovative processes (measure 142 in the current EAFRD, article 28 in the CAP proposal⁸³).

Local partnerships play a crucial role in implementing Natura 2000 conservation management on the ground. The reach of agri-environment schemes at the landscape scale can be greatly boosted by regional associations and by the involvement of non-farmer groups, as demonstrated by the Dutch environmental co-operatives (Franks and Mc Gloin, 2007) and the German Land Care Associations. These co-operative associations link nature conservation groups with local farmers and local communities across a region, and can often bring opposing interest groups work together to care for Natura 2000 sites. By pooling interests and local forces the Land Care Associations in Bavaria implement integrated and sustainable land management practices to protect the adopted flora and fauna and to support sustainable development. The local coordinators develop projects for specific landscape types including scientific measures, financial calculations and the implementation of agri-environment schemes. They apply for available funds on the state-level and supervise the implementation of activities, mostly done by local farmers, as well as monitor the project outcome. The basis for successful projects is the close cooperation with farmers, local communities, conservation groups and government authorities.

⁸¹ Article 28 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

⁸² Article 36 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

⁸³ Article 28 in European Commission (2011) Proposal for a regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2. 19-10-2011. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

LEADER has not been used by Member States as a significant funding source for Natura 2000 management measures, but it can provide substantial benefits by promoting co-operation between local actors and developing integrated projects that combine nature conservation and land use in a sustainable way. The approach has a strong potential to use local action groups to deliver innovative projects for training farmers, to implement beneficial land management at a landscape scale, to develop and implement Natura 2000 management plans, and to fund transnational projects aimed at learning about protected habitats that cross borders (Cooper et al, 2006).

LEADER funds can be accessed by groups who are not professional farmers and therefore offers wider opportunities. For example, Finland now offers LEADER funding to NGOs for management of Natura 2000 meadowland and wetlands not owned by professional farmers (Figezky et al, 2010). Some LEADER projects have enhanced the value of Natura 2000 sites through schemes to develop eco-tourism, or programmes to produce and market quality local agricultural products such as beef, supporting traditional farming systems and their associated semi-natural habitats (see section 0 for further discussion). There is however not much evidence of real achievement for biodiversity on the ground so far (Beaufoy & Marsden, 2010; Cooper et al, 2006; Redman, 2010). The schemes have been criticised for their lack of transparency about procedures and implementation (European Court of Auditors, 2010), and for their failure to include sufficient environmental expertise in the Local Action Groups (Birdlife International, 2009b; Boccaccio et al, 2009).

In future, LEADER projects could be more targeted towards HNV farming systems. Any of the CAP EAFRD measures described in this report could be used to support the goals of LEADER projects in Natura 2000 areas, including measures addressing competitiveness and land management, as well as those to support diversification of farming activities or to promote and add value to agricultural products described in [section 4.7.16](#).

4.5.15 CAP EAFRD Measures to support diversification of farming activities or to promote and add value to agricultural products

A number of EAFRD measures can be used to diversify farming activities or to promote and expand direct marketing schemes for agricultural products. These include measures for adding value to agricultural and forestry products (123); cooperation for development of new products, processes and technologies (124); meeting standards based on Community legislation (131); participation of farmers in food quality schemes (132); and information and promotion activities to promote quality of agricultural production and products (133). The measures for diversification into non-agricultural activities (311) and support for micro-enterprise creation and development (312) can support farm-based businesses to add value from biodiversity conservation through agro-tourism, local marketing of products, or recreational or educational services. Many of these measures are implemented by Local Action Groups under LEADER or farmer producer groups (see section [4.5.15](#)).

In the CAP reform proposals, these measures are grouped under support for farm and business development (article 20 of EAFRD proposal), and support for quality schemes for agricultural products and foodstuffs (article 17 of EAFRD proposal).

These measures can be used to support and improve the socio-economic viability of farming on Natura 2000 areas through the marketing of high value agricultural products, agro-ecotourism, or other initiatives such as educational or cultural services. The measure for adding value to products can provide investment support for on-farm or local processing, for example cheese production from mountain dairy farms, and the diversification measure can support the development of farm businesses producing and marketing renewable energy sources, including bioenergy. The value of these activities for Natura 2000 farmland management is discussed in section 4.7.1.

Box 3-2 Examples of successful co-operation initiatives to promote Natura 2000 products and agro-tourism using LEADER and integrated CAP funding

Sources: (Beaufoy et al, 2011a; EC, 2009; Keenleyside et al, 2012; Poláková et al, 2011) and http://www.rudi-europe.net/uploads/media/Case-study_Italy_1.pdf, <http://www.herbmedit.org/flora/20-047.pdf>, LIFE04 NAT/IT/000173

Austrian “Almo Genussregion” – Almenland restaurants and beef marketing

The Leader+ region "Almenland Teichalm – Sommeralm" in Styria produces excellent quality beef on 3,600 ha of alpine pastures. The Almo, i.e. the ox raised on the areas' alpine pastures, is now a registered trademark and the product is being certified. The LAG is promoting the Almo-region as 'Genussregion' ('region of pleasure') for tourists, and quality restaurants and shops are offering the local Almo beef. Throughout the process an open communication with the local population and a close collaboration between municipalities, farmers, tourist service providers, a regional slaughter house and the producing company has been the key to success. The beef is also now sold on sales stands in about 250 outlets of a national supermarket chain.

Italian Grosseto province – integrated rural development

The Grosseto province in the Tuscan countryside has taken a strong integrated approach to rural development funding. Agro-tourism visits doubled in Grosseto province between 2000 and 2007. Rural tourism is seen as a channel for promoting local agricultural products as well as the natural and historic heritage. Agricultural added value grew by about 2% per year. At the same time, the area covered by regional protected areas has risen to about 10% of the region, including 3 regional parks and 35 national reserves. The area is also rich in floral biodiversity.

4.5.16 CAP EAFRD Measures to support farm infrastructure and modernisation

The farm modernisation measure (measure 121 in the current EAFRD) aims to improve the competitiveness of the farm business by providing capital aid for investments in farm infrastructure. In France, Italy, Spain and the Czech Republic this measure is explicitly linked with mountain areas and mountain farming activities. 15% of the RDPs indicate specific priority for mountain farmers/holding, including also specific priorities for sectors that are relevant and/or exclusive to mountain areas. In practical terms this usually translates in a higher level of payment granted to these subjects. (EC, 2009) Payment rates can be higher in mountainous areas.

The measure to support semi-subsistence holdings (measure 141 in the current EAFRD) was set up for the new Member States to aid farmers to restructure their farming towards more market production, but will probably be phased out in the CAP reform.

These measures can fund investments that increase the viability of small-scale extensive farms in High Nature Value farming areas, in which most of the Natura 2000 farmland habitats are found. For example, small dairy units might be retained through the funding of on-site or nearby dairy processing units that generate monetary rewards from added-value products for local producers. Investments in improving manure storage and water efficiency on farm holdings are likely to have indirect benefits for biodiversity and habitats by improving water quality or availability and reducing nitrogen pollution, as well as greenhouse gas emissions (Boccaccio et al, 2009; EC, 2010c). Cyprus is implementing a measure to support “land development planning for livestock farming”⁸⁴, including planning, landscaping and infrastructure (water, electricity etc.) for grazing zones. The measures can also be used to fund infrastructure that is needed for Natura 2000 habitat management, such as wetland dredging, restoration of water management systems to restore wetland hydrology, and access tracks, fencing and machinery. However, EAFRD resources are also spent on investments under these measures that can pose environmental risks (Boccaccio et al, 2009).

In the new Member States, these measures have the potential to provide important support to maintain extensive and High Nature Value farming systems, especially when used in combination with tailored diversification and business development measures, for example by improving access to markets; however HNV farmers may not be a priority for investment support and in Romania for example many semi-subsistence farmers are actually excluded from receiving payments or have limited access because they have an ‘economic size’ of less than 2 ESU (Redman, 2010). Although the measures are aimed at improving the competitiveness of agriculture, their impact is limited by significant challenges, including: the difficulty of individually targeting smaller producers as a large proportion are not registered; the prohibitive transaction costs associated with reaching large numbers of very small holdings, and in turn for the paying agencies to process and control high numbers of very small financial claims; the difficulty of reaching small farmers through policies requiring formal co-operation due to the farmers’ reluctance to co-operate; and the high age and low level of education of many subsistence farmers (Redman, 2010).

4.6 Other EU financial instruments that can support management of farmland in Natura 2000

4.6.1 LIFE+ Programme funding

LIFE+ is the main EU funding instrument dedicated to the promotion of the environment within the EU 27 for the period 2007-2013. The LIFE+ component ‘LIFE+ Nature and Biodiversity’ supports best practice or demonstration projects that contribute to the implementation of the Birds and Habitats Directives and the Natura 2000 network, and

⁸⁴ Republic of Cyprus Department of Agriculture RDP 2007-2013
[http://www.moa.gov.cy/moa/da/da.nsf/5662a234cdc4557ec2256e9d003b2c8c/2f56ffc4cac8bc90c2256e9d003bba74/\\$FILE/CyprusRDPSummary2007_2013.pdf](http://www.moa.gov.cy/moa/da/da.nsf/5662a234cdc4557ec2256e9d003b2c8c/2f56ffc4cac8bc90c2256e9d003bba74/$FILE/CyprusRDPSummary2007_2013.pdf)

projects related to biodiversity conservation in general. The LIFE programme has played a pivotal role in financing the establishment and initiating management of the Natura 2000 network (COWI, 2009)⁸⁵.

Though the budget of the LIFE+ instrument is small compared to other EU financing instruments (Kettunen et al, 2011), LIFE+ has strategic importance for Natura 2000, because it finances very specific, targeted conservation measures which are more difficult to fund from other EU sources, such as monitoring and surveying, definition and establishment of management techniques, and management of risks to Natura 2000 sites (Gantioler et al, 2010; Kettunen et al, 2011).

LIFE+ funding is particularly important for sites where agricultural management has been abandoned, and Natura 2000 management planning has not progressed far enough to allow application for funding from other sources (Kettunen et al, 2011). Its main purpose is to provide best practice examples, so on-going management activities which are unlikely to be seen as 'best practice' can fall outside the scope of LIFE+. Consequently, the positive effect of the project will be lost if appropriate management is not supported from other sources, particularly agri-environment schemes, after the project ends (COWI, 2009). The development of agri-environment schemes for Natura 2000 management is therefore a priority in LIFE budgeting (European Commission, 2003). Many Natura 2000 restoration projects have successfully combined LIFE funding with the development of agri-environment funding to ensure long-term financial support (WWF and IEEP, 2009). LIFE has financed the development of over a thousand management plans.

The new LIFE Integrated Projects (IPs) could also prove relevant for Natura 2000 habitat conservation by improving the integration of environmental aspects in other EU policies, and by focusing on the implementation of plans and strategies on a larger territorial scale (e.g. regional, multi-regional, national).

4.6.2 European Regional Development Fund and Social Fund

The European Structural Funds, which are the European Regional Development Fund (ERDF), the European Social Fund (ESF), and the European Cohesion Fund, make up over half of the EU central budget. The aim of the ERDF and ESF is to promote the economic and social development of disadvantaged regions, sectors and social groups within the EU by reducing regional disparities and supporting the structural development and adjustment of regional economies (Farmer, 2011). The European Social Fund (ESF) can support capacity building aimed at the creation of new job opportunities related to Natura 2000, however it does not provide any dedicated objectives directly relevant for biodiversity so it is not possible to track the impacts of expenditure on Natura 2000 (Kettunen et al, 2011).

The ERDF allows for allocation of funds to biodiversity in the measures for promotion of biodiversity and nature protection (code 51), promotion of natural assets, and protection and development of natural heritage (Articles 4(4), 4(6), 5(2)b), 6(2)b)). The funds also allow for allocation of funding to transnational, cross-border and interregional cooperation which

⁸⁵ McConville,A.J., Gantioler,S., Medarova-Bergstrom,K., Lewis,M., Bassi,S., Kettunen,M. & ten Brink,P. (2010) Proceedings of the stakeholder conference on financing Natura 2000, Brussels, 15-16 July 2010. http://ec.europa.eu/environment/nature/natura2000/financing/index_en.htm

can benefit Natura 2000 sites and species, for example projects to develop eco-tourism, and to protect, restore and manage river basins, coastal zones, marine resources, water services and wetlands (Article 6(2)b). It is the Member States' responsibility to decide on the allocation of these funds and Member States prepared national strategic reference frameworks and Operational Programmes for spending funds in the period 2007-2013.

The European Structural Funds can provide significant funding for Natura 2000 restoration, conservation, management and monitoring actions (European Commission, 2011). The funding could also be used to support eco-tourism, awareness-raising and communication, training and education activities in Natura 2000 areas. The majority of regions and Member States include biodiversity as a priority in their Operational Programmes, and most have dedicated funds for code 51 under the ERDF (ie permitting spend on nature conservation and Natura 2000) (INTERREG IVC SURF Nature project, 2011). However, only a small proportion has actually succeeded in allocating a significant part of the budget to nature conservation projects. For example, the Czech Republic obtained 0.7€ million ERDF money for its Natura 2000 network to spend by the end of 2008 (Court of Accounts of France, 2008), and €34m was accessed by Murcia in Spain under code 51 (INTERREG IVC SURF Nature project, 2011). A project in a string of coastal Natura 2000 sites on Tenerife in the Canary Islands used INTERREG funds to finance monitoring and inventory of species and habitats in Natura 2000 sites, as well as the design of site management plans (WWF & IEEP, 2009). Other examples are shown in Box 4-4. Many other ERDF projects have funded infrastructure developments, such as roads, that have led to negative effects on biodiversity (CEE Bankwatch Network and FoE Europe, 2011). In general, it is difficult to get an overview of how much has been spent on Natura 2000 and what impact this has had on biodiversity (Kettunen et al, 2011).

The use of EU structural and regional funds for Natura 2000 management is constrained by the significant investment needed to apply for funds, and the long wait until funds arrive. In general, the funds are only accessible for large-scale projects.

Box 3-3 Examples of the use of ERDF funds for Natura 2000 farmland management

Source: (Hjerp et al, 2011)

An example of a pioneering use of ERDF funds for Natura 2000 management is the project to implement an Integrated Weser Management Plan for the Weser river estuary, with its 3 SCIs and 3 SPAs, and the estuarine cities of Bremen and Bremerhaven. The ERDF funds were allocated under Priority 2 “To activate the urban economy and quality of life”, for activities to re-naturalise the river shore and improve recreation opportunities, and to restore and manage the river basin¹. The project is restoring a range of estuary habitats and species in both the Niedersachsen and Bremen Federal States.

The emphasis of the ERDF Interreg Natureship project (Finland, Sweden, Estonia and Latvia) of Central Baltic Interreg IVA Programme is a novel approach on planning and management of traditional rural landscapes and selected coastlines. The aim of the project is to create and restore an optimal ecosystem service network based on integrated sustainable coastal planning. The project will also assess how to achieve cost-effective planning and management of traditional rural biotopes of city areas in order to enhance public and biodiversity values.

TIDE (Tidal River Development) is an ERDF Interreg project which covers the estuaries of the Rivers Elbe (Germany), Humber (England), Scheldt (Belgium and the Netherlands) and Weser (Germany) and brings together experts, scientists, policy-makers and managers representing economic, social and environmental interests in the four estuaries. The aims of TIDE are to identify knowledge gaps in hydrology, morphology and ecology, integrate planning in local policy whilst ensuring that Natura 2000 and Water Framework Directive requirements are met, and define the most important ecosystem services in each estuary and then relating this to benefits. A budget of €3.7 million is available, 50 per cent of which is derived from the European Regional Development Fund, financed through the Interreg IV B North Sea Programme, and 50% is paid by the partners.

4.7 Market-based instruments and innovative instruments

This section reviews instruments that can be used to leverage private financing for Natura 2000 management, and/or increase the economic viability of Natura 2000 management. These initiatives often benefit from EU funds under one or more of the previously described measures, in order to help set up the scheme. A range of other potential measures exist through which public funding and/or policy actions can potentially stimulate increased private sector funding of biodiversity, often in combination with public funding, for example from not-for profit organisations (e.g. NGOs, foundations), philanthropic donations by companies, or from rural communities. There is also a key potential for micro-finance for pro-biodiversity local businesses and co-operatives, such as direct marketing initiatives. The added value offered by visitors and tourists in Natura 2000 areas could also be captured more effectively through integrated local development and conservation projects (see also [Box 4-6](#) for examples). An important consideration is that these measures should generally be able to build on the foundation set by the basic policy framework and core public funding measures for Natura 2000 farmland management described in [sections iError! No se](#)

encuentra el origen de la referencia. and ¡Error! No se encuentra el origen de la referencia., rather than being considered as alternatives.

4.7.1 Labelling schemes and initiatives to promote and add value to agricultural products, including organic certification

The establishment of local and regional markets for good quality natural-based products from Natura 2000 sites (e.g. “green beef”, cheeses, wines, added value products from wild fruits, mushrooms, medicinal plants, wool, milk) can support biodiversity conservation by helping to maintain traditional extensive farming practices. Such products can also stimulate tourism and thereby further boost income for local people, which in turn will protect the nature as the source of their welfare.

A system of Europe-wide labelling schemes is available for the protection of agricultural product names from defined areas⁸⁶. To qualify for Protected Designation of Origin (PDO) label, the product must have qualities and characteristics that are essentially due to its region of production: it must also be produced, processed and prepared exclusively within that region. Examples of PDOs are Prosciutto Toscano (ham from Italy’s Tuscan region) and Bryndza Podhalańska (Polish sheep’s milk cheese). Many local labelling schemes also exist, including ones that specifically refer to Natura 2000 areas.

Organic certification can add a critical margin of profitability to agricultural products from extensive livestock systems. Member States can support organic farming through a range of measures (see section 4.5.9). Organic labels include the EU leaf label and various national or independent IFOAM-associated accreditation schemes and labels⁸⁷.

Many farmers on Natura 2000 and HNV grasslands face challenges selling their products, because they are often in remote areas where there are few customers who can pay premium prices. On the other hand, some are well-placed to take advantage of direct marketing to eco-tourists and tourist services such as hotels and restaurants. In some regions Natura 2000 farmers have built up successful direct marketing connections to supermarkets.

Labelling is being successfully used in combination with direct marketing to support extensive farming management of Natura 2000 sites using traditional livestock breeds. **Box 4-7** gives some examples of successful uses of the PDO label to market products from Natura 2000 habitats. It is important to note however that the PDO label provides no

⁸⁶ [The requirements for the Protected Geographical Indication (PGI) label only require a good reputation of a product from a given region (rather than objectively different characteristics) so long as any of the steps of production, processing and preparation take place within the region. Examples of PGIs are Scotch Beef and Lamb from Scotland, Stilton Cheese from three counties in England, Oscypek (smoked cheese made from salted sheep’s milk) from the Tatra mountains in Poland (or wherever Tatra natives have emigrated). The Traditional Speciality Guaranteed (TSG) label can be used for products which are manufactured using traditional ingredients or that have properties characteristic of a traditional type of manufacturing or processing, but the product does not have to be manufactured in a particular area. This system works in parallel with systems used in particular Member States, such as the Appellation d’origine contrôlée (AOC) used in France, the Denominazione di origine controllata (DOC) used in Italy, the Denominação de Origem Controlada (DOC) used in Portugal, and the Denominación de Origen (DO) system used in Spain. For some products, the national label is shown instead of the EU label, for example for wine and cheese in France]

⁸⁷ International Federation of Organic Agriculture Movements <http://www.ifoam.org/>; <http://www.organic-bio.com/en/labels/>

guarantee that the product has benefited biodiversity anywhere, much less Natura 2000 sites, because the label criteria do not generally specify habitat management measures. Local “Natura 2000” labelling schemes benefit Natura 2000 farmland management more directly. **Box 4-8** illustrates examples of successful local labelling schemes supporting Natura 2000 farmland management. In order to maintain the benefits for extensive farming and production practices as well as the cultural value of the regional identity, the target markets often need to be organised locally or regionally, and trust and a direct relationship between producers and consumers are critical to the success of labelling schemes. It is currently not possible to quantify the amount of organic production from Natura 2000 areas, but organic farming plays a significant role in supporting extensive sheep and goat grazing in Mediterranean countries, including the production of regional cheeses such as Feta, Caprino, Casu Marzu, or Halloumi.

Box 3-4: Examples of products registered under the EU Protected Designation of Origin label (PDO) that are benefiting Natura 2000 habitats

Sources: Ecologic, 2006a; Oppermann and Spaar, 2003; Verhulst et al, 2007, case studies (annex)

Germany: The PDO scheme for moor sheep meat (‘Diepholzer Moorschnucke’) helped to establish profitable management of **semi-natural moorland and Ramsar-listed wetland habitats** in Diepholz, Germany, which would otherwise have deteriorated. The scheme uses a local breed of sheep that was traditionally used for grazing moorland and wetlands. The management has contributed to the regeneration of more than 5,000 ha of moorland. A number of endangered species, including sundew and wood lark, have recovered in the area, whilst the preservation of the traditional sheep breed enhances agro-biodiversity.

France: PDO Pays d’auge cider and Calvados from traditional apple orchards, which are important habitats for hole-nesting birds and bats.

Spain: A successful PDO scheme for ewe’s milk cheese (‘Idiazabal’) from the extensively grazed **mountain habitats** in the Basque and Navarra regions, Spain, involves production methods based on low-intensity grazing with traditional sheep breeds *Laxta* and *Carranzana*. The market for the product helps maintain the transhumance and shepherding which has shaped the semi-natural habitats.

Spain: The traditional rice varieties produced through the PDO scheme ‘Arroz de Valencia’ are cultivated within the protected **wetlands** of the Albufera National Park in the region of Valencia, important for migratory and water birds, as well as amphibians, fish and many other species. The production methods are tailored to the habitat, relying on varying flooding levels which sustain wetland soil conditions, and minimise use of agro-chemical inputs.

Spain: In traditionally managed **dehesas**, pigs forage for acorns in autumn-winter and graze during spring, often together with sheep or cattle grazing. The PDO Iberian ham produced from pigs grazed on dehesas can be labelled “acorn fed” (de bellota) if the pigs feed on acorns only for at least 60 days before slaughter, and includes the condition that inspectors check that stocking density is within the carrying capacity of the dehesa (in terms of acorn production). The pigs must therefore graze in the dehesa for at least part of the year to meet the PDO requirement, thereby supporting the sustainable use of this habitat.

Box 3-5 Examples of successful local labelling schemes supporting Natura 2000 farmland management

Sources : <http://www.altmuehltaler-lamm.de/>
<http://ec.europa.eu/ourcoast/index.cfm?menuID=7&articleID=29>,
<http://www.unesco.de/fileadmin/medien/Dokumente/unesco-heute/uh2-07-p44-45.pdf>
See also the Luxembourg, Estonian and Spanish case studies.

Estonia – coastal meadow meat. Projects to restore the management of boreal coastal meadows have stimulated a growing market for local high quality organic meat. The newly established cattle breeders' society is organising study-tours for themselves and farmers from neighbouring areas. A revival of traditional handicrafts using local raw materials has established a tradition of local-product fairs in the island of Hiiumaa, and local tourism businesses are growing.



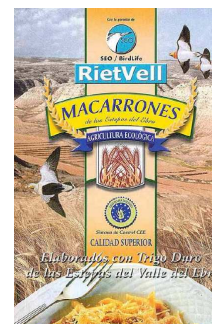
Germany – Rhönschaf. the Rhön Biosphere Reserve used LIFE funds to promote sheep meat from the Natura 2000 grasslands as a nature-friendly product through the co-operative "Natur- und Lebensraum Rhön e.V.". A typical shepherd on one of the restored sites was, by 2002, selling 70% of his annual lamb surplus directly to local restaurants and hotels at good prices. Local hotels and restaurants in the network committed themselves to only use Rhön sheep products on their menus, and to promote to visitors how consumption of these dishes helps to preserve the landscape they have come to enjoy.



Germany – Altmuehltaler Lamm. The Altmuehltal region in Bayern is characterised by juniper scrub on calcareous grasslands (Annex I habitat type 5130). Shepherded sheep flocks produce high-quality lamb meat and wool. Shepherds and landowners in the regional co-operative agree to graze at least half their sheep within the nature reserve Altmuehltal, feed only locally produced supplementary feed, and follow guidelines for animal welfare, grazing density, and a ban on pesticide and fertiliser use. The shepherds are guaranteed a fair price, and the lamb meat is sold in local hotels and butchers.



Spain - Riet Vell. SEO/BirdLife created a company devoted to the production and marketing of organic products linked to nature conservation (Riet Vell). The company has been successful in marketing rice produced in the Ebro delta (SPA) and organic durum wheat from Belchite and Monegros steppes (mostly produced in Natura 2000 areas) and producing macaroni and spaghetti of high quality from the latter. From 2003 until now, Riet Vell has sold around 180,000 kg of produced (see case study from Spain for further details).



4.7.2 *Payments for Ecosystem Services schemes*

Payments for Ecosystem Services schemes are arrangements in which the beneficiaries of ecosystem services pay the providers of those services to maintain them (TEEB, 2011). The payments can therefore provide an incentive for the conservation and restoration of biodiversity and habitats in order to safeguard (or potentially increase) the provision of the ecosystem services it provides. Typical ecosystem services that PES schemes are designed to support are groundwater quality, river water quality (restricting nutrient run-off and soil erosion), and carbon sequestration. PES schemes can operate between land managers or farmers and public organisations (such as municipal water companies) or private businesses (such as breweries), and may operate at the local, regional, river catchment or national scale. A range of different financing and payment mechanisms are referred to as PES schemes, including tax incentives, voluntary markets and broad public measures such as agri-environment schemes, but in this section we refer only to PES systems based on direct payments between beneficiaries and providers.

PES schemes are sometimes criticised as being disguised subsidies to encourage compliance with existing standards and laws that land managers and farmers should be meeting without extra payments, such as management measures to restrict nitrate emissions. Factors that are critical for the success of PES schemes in Europe therefore include ensuring that:

- The scheme design is based on robust information on the baseline status of land use and ecosystem services, in order to avoid overestimating the environmental threat;
- All key stakeholders participate in the scheme;
- The payments are tied to regular and transparent monitoring of indicators that adequately measure improvement in the ecosystem service(s);
- the scheme is not used to pay for management practices that ought to be carried out to meet legal obligations;
- the scheme is adjusted whenever existing regulations and norms are tightened up;
- the scheme is not being undermined by conflicting policies and regulations that are driving the deterioration of ecosystem services.

Successful schemes require transparency, reliability (e.g. of payments), acceptance of environmental stewardship values, trust, and strong commitment by all key stakeholders. In practice, PES schemes will only be able to halt degradation or loss of ecosystem services and biodiversity if they are embedded in a broader mix of policy instruments that address the full range of ecosystem services from an area (TEEB, 2011).

Payments for Ecosystem Services schemes other than broad public funding schemes are still relatively uncommon, but the success of some schemes show the potential they have to support and improve the management of Natura 2000 farmland. For example, the

Sustainable Management Catchment Programme (SCaMP)⁸⁸, developed by a UK water company in association with the RSPB, applies a Payment for Ecosystem Services scheme to the maintenance of grazing on upland heathland. The water company benefits from improved water quality by reducing erosion of the peat soils from burning and over-grazing (see the UK case study for further details).

4.6.1 Carbon offsetting and protection of carbon-rich habitats

There are now voluntary and regulated carbon trading schemes operational throughout Europe that mean stored carbon, if verified, could have an economic and tradeable value (Worrall et al, 2009). This means that new income streams could become available for land management. The legal protection of carbon-rich habitats may also be strengthened in the near future as EU Member States start accounting for LULUF in their national carbon budgets (eg see section **¡Error! No se encuentra el origen de la referencia.** for proposed CAP cross-compliance standard). At the same time, these habitats are being strongly affected by both land use change and climate change (Holden et al, 2007; Reed et al, 2009).

Fens and heaths on intact peat soils could benefit from funding from carbon offsetting. A UK study modelled the carbon benefits of targeted management interventions on upland peatlands, and estimated that given present costs of peatland restoration and value of carbon offsets, perhaps 51% of those upland areas where a carbon benefit was estimated would show a profit from carbon offsetting within 30 years (Worrall et al, 2009). However, this percentage is very dependent upon the price of carbon used.

4.6.2 Agritourism and nature recreation activities

Tourism is often listed as one of the key causes of degradation of sensitive Natura 2000 habitats, for example the impacts of ski resorts or other mountain tourism on alpine pastures. However, sensitive tourism in Natura 2000 farmland areas can be a vital driver of the local economy and a catalyst for the development of local markets for high quality Natura 2000 agricultural products, and for a revival of other social and cultural initiatives.

It is vital for the conservation of Natura 2000 areas to find ways in which the area can accommodate both the requirements of sensitive species and habitats and touristic usage (Interreg IIIB Project AlpNaTour, 2006). One key instrument towards that goal is the management planning process for Natura 2000 areas, which integrates the demands of user groups including recreation and tourism and local businesses with appropriate measures for the protection of species and habitats. Key issues that need to be addressed include:

- How can visitors (and locals) be informed and directed so that they both enjoy their visit without feeling unduly constrained, but also restrict their movements (eg staying on paths) and activities (eg controlling dogs) to those that do not damage natural habitats, animals or livestock?
- How can visitors be encouraged to stay for longer so that they both contribute more the local economy and learn more about the local nature? How can the interests of

⁸⁸ <http://www.unitedutilities.com/scamp.aspx>

the strategic priorities and the measures to be carried for the period 2014-2020 as well as the funding instruments that may be used to implement those measures.

It will then be necessary to integrate the results of such strategic planning tools in the relevant operational programmes of the different funding instruments. As regards the measures required to improve the conservation status of key agricultural habitats and species, this will involve including the corresponding measures in the corresponding Rural Development Programmes and other relevant programmes.

In the current financial framework, some countries have already developed interesting experiences in this regard. For instance, The Slovenian “Natura 2000 Site Management Programme 2007-2013” is a notable example of a national level integrated approach to Natura 2000 conservation planning (Republic of Slovenia Ministry of the Environment and Spatial Planning, 2007). The programme developed detailed conservation objectives, measures to achieve those objectives, and monitoring and research proposals, for all Natura 2000 habitats, species and sites in Slovenia. This was prepared in cooperation with relevant public services, ministries and others, with knowledge of the legislative framework and the register of land use, and based on expert groundwork and scientific knowledge. At the same time, measures were included into the Rural Development Plan 2007-2013 and the Slovenian regional development programme. The programme analysed the financial needs for Natura 2000 management and detailed the use of both EU funds and national funds. Other Member States are undertaking similar programmes; for example England and Wales have recently secured LIFE+ funding for integrated Natura 2000 management planning.

The proposed schemes and measures need to have appropriate payments rates to achieve desired levels of uptake. The schemes as a whole also need to have adequate funds to ensure their coverage is sufficient to meet their overall objectives (which should be in line with the commitments in the EU BAP to improve the conservation status of habitats and species in Natura sites). As most schemes are currently reliant on CAP Pillar 2, funding for agri-environment measures and Natura payments is at the very least maintained and increased.

Funding under RDPs also needs to be on a long-term basis if at all possible, as gaps in funding erode confidence amongst farmers and landowners and dissuade them from taking on long-measures (such as habitat restoration). If long-term funding is not available farmers will tend to focus on measures that can be easily reversed, which in some cases will result in the permanent loss of benefits that may have been built up over the course of a scheme. This will reduce the long-term benefits of public expenditure.

A constraint on the development of mutually beneficial management measures for nature and farming, has been that agri-environment schemes and Natura payments are based on income-foregone calculations, which may not be sufficient to attract many farmers. This can result in low uptakes rates for agri-environment measures (especially for riskier actions), which can reduce their ecological effectiveness in Natura sites if they become too fragmented. However, there is increasing recognition that payments can include transaction costs (but not direct incentives) and the development of payments for ecosystem services may provide more flexible funding options that can be directly based on outcomes and reflect the market for the provision of services. The innovative use of funding, such as CAP

Art 68 measures can also provide opportunities for developing management measures that are properly funded, and therefore readily taken up by farmers.

Recommendations:

- It is important to rely on the prioritized action framework (PAF) to strengthen the integration of Natura 2000 financing into EAFRD and other funding programmes.
- At national/regional level, it is necessary to carry out a rigorous analysis of the situation and the needs regarding Natura 2000 farmland management, considering the main trends and drivers, the strategic priorities and the measures to be carried out in order to contribute to improving conservation status of key agricultural habitats and species in the country or region.
- It is crucial to define clear quantified targets and analyse the different funding options, in order to develop an integrated programme of combined measures to achieve favourable conservation status of key agricultural habitats and species, including: direct payments, LFA, investment in restoration and infrastructure, diversification, cooperative groups, advisory services, training, basic services, marketing support as well as Natura 2000 payments and agri-environment measures.
- EAFRD provides enough opportunities. Different measures must be joined up and objective lead within a strategy in accordance with art 9 (1) (c) of the proposed Rural Development regulation. A pertinent approach towards environment, including the specific needs of Natura 2000 area shall be integrated into the programme (art 9 (1) (c) (iv)).
- The possibility and feasibility of setting specific RDP Sub-programmes for Natura 2000 and HNV farming should be analysed.

4.8.2 The need for partnerships to provide strategic guidance at national and regional levels on priorities and to design specific management measures

There is a need to strengthen the partnership approach through the involvement of the agricultural and the nature conservation sectors in promoting integrated management of farmland in Natura 2000 areas. This requires an active cooperation between agriculture and nature/environmental authorities, at national and regional levels, in the definition of strategic priorities and the design of appropriate measures.

Many environmental priorities require support and management at the wider landscape scale and joint action between different types of land managers (farmers, forest owners, public authorities managing public land). Managing authorities should therefore collaborate with a wide range of stakeholders, including the farming and forestry communities in the design of their RDPs. Adequate cooperation among managing authorities and relevant stakeholders should ensure the choice of appropriate Pillar 1 and Pillar 2 support to deliver

environmental outcomes, and that the latter is delivered at a level above that required in the baseline (Allen et al. 2012).

Especially in Member States where there has been a long experience with agri-environment schemes, there is increasing evidence of farmers wanting to have a say in designing the prescriptions for delivering the desired outcomes and of this leading to successful outcomes (Polakova et al. 2011).

At local level, agricultural and nature conservation authorities, NGOs, farmers and other stakeholders are increasingly working in partnerships to develop land management schemes in Natura sites that consider win-win opportunities. This cooperative approach, which is working well at local level in many places in Europe, must also be taken into account in the preparation and design of specific management measures (eg. in RDPs) at national or regional level.

4.8.3 Local action as a key to the success of Natura 2000 farmland management

Local action makes the difference between a relatively low level of success and real achievement of both favourable conservation status and socio-economically viable farming. Local partnerships are important to implement Natura 2000 on the ground.

There are some good examples where use conflicts have been successfully resolved at the local scale and different measures have been successfully combined to create a situation where farming Natura 2000 habitats is socio-economically viable.

The Landcare Associations (LCA) in Germany are working on the implementation of suitable agricultural measures in Natura 2000 in cooperation with farmers and local communities. These regional non-governmental associations link nature conservation groups with local farmers and local communities. 155 Landcare associations (at least one in every federal state) are working on a district level together with 20,000 farmers, more than 3000 local authorities and 1000 NGOs. These often opposing interest groups are working together to implement integrated and sustainable land management practices in many Natura 2000 sites. Local Landcare coordinators in LCAs develop projects for specific landscape types including scientific measures, financial calculations and the implementation of agri-environment schemes. They apply for available funds on the state-level and supervise the implementation of activities, mostly done by local farmers, as well as monitor the project outcome. The basis for successful projects is the close cooperation with farmers, local communities, conservation groups and government authorities. The implementation of suitable measures in Natura 2000 areas is based on the combination of three main elements: 1) Direct Payments, 2) Agri-environmental Programs, 3) Land Management Programs to preserve the Natural Heritage based on the current Article 57 of the EU Agricultural Financing.

These type of initiatives demonstrate that if different interests are able to sit down together and discuss the practical aspects of managing farmland of high nature value, including Natura 2000, at a local level solutions can often be found to the mutual interest of both

sectors and without major problems; in fact, it often turns out that the nature and farm people can mutually support each other.

This mechanism of getting people together is however often overlooked in policy and funding instruments, and so remains under-recognised and under resourced. As a result there remains a strong distrust of Natura 2000. This can only be overcome by ensuring a more systematic approach to ensuring dialogue and cooperation at local level. Some mechanism should be found to provide funding and support to local organisations/partnerships that bring the different parties together to discuss at a practical level how to integrate all interests (as is done systematically now in France through the *local comités*).

However for this to work, there also needs to be much better coordination/integration at a higher policy/political level. The use of existing or future tools and instruments such as the co-operation measure and the new proposal for 'local partnerships' in Rural Development policy should be encouraged. The new integrated projects under LIFE could be also useful to encourage local dialogue on Natura 2000 and farming.

5. DESIGN AND IMPLEMENTATION OF MEASURES TO SUPPORT NATURA 2000 FARMLAND MANAGEMENT

Natura 2000 farmland management requires support from an integrated set of policy measures (as described in section 4), including management plans, baseline regulatory measures, general farm support and specific contract-based measures to achieve targeted outcomes for biodiversity.

Essential steps to implementing policy measures are (Baldock et al, 2002):

- analysis of the initial environmental situation and problems and strategic planning, and definition of objectives and targets;
- design and selection of appropriate policy instrument(s) and supporting measures;
- good contract design and implementation, including local partnerships;
- good communication, advice and training;
- capacity for adaptive management and learning;
- monitoring and evaluation.

Considering this process, this chapter provides a step by step guide to designing packages of measures to achieve conservation objectives. Practical examples (from case studies in [annex](#) and other) are included to illustrate the implementation of the recommendations.

5.1 Strategic planning and prioritization; defining objectives and targets

Strategic planning is important to establish conservation priorities (eg which habitats and species might be the focus of priority measures) and to identify areas that should be targeted. This is important because funding resources are limited and inadequate to achieve all desirable nature conservation goals. Member States need to be clear about their strategic priorities, the necessary conservation measures, and choice of financing instruments in their Prioritized Action Frameworks for Natura 2000 (see [section 4.2.3](#)). It is also important to integrate the nature conservation objectives for key agricultural species and habitats into other relevant planning documents for national and EU funds, including national biodiversity action plans, Rural Development Programmes, National Strategic Reference Frameworks and Operational Programmes⁸⁹.

It is very important to ensure **cooperation between nature and agriculture authorities and relevant stakeholders** to define strategic priorities and conservation objectives in relation to agricultural habitats and species Natura 2000.

Strategic planning needs to identify national or regional conservation objectives and priorities by taking into account the conservation status of key agricultural habitats and

⁸⁹ Member States have to prepare a National Strategic Reference Framework to describe how they plan to allocate spending from the European structural funds. Each spending stream under each fund is described in the Operational Programme.

species, their representativity in the country or region, and other relevant aspects. Section 4.2 “What are the obligations in Natura 2000 sites?” explains what Member States need to do to ensure appropriate management and avoid deterioration of habitats and species of Community interest. Conservation objectives and management measures need to be planned based on the best available knowledge about the current status of habitats and species, and the drivers and pressures behind their deterioration. Section 2.6 “What are the main pressures and threats to habitats and species dependent on agriculture?” gives an overview of the main pressures affecting key agricultural habitats and species. This confirms that abandonment of extensive management regimes is the dominant threat, with fewer areas affected by intensification of management. All agricultural habitat types and most key species have unfavourable or unknown conservation status and therefore initial restoration actions will be necessary prior to the introduction of suitable long-term management.

It is important to use the input of detailed ecological knowledge from experts and from monitoring programmes to plan the best management measures, and to target the highest priority actions and areas. The Managing Authority needs to have access to all relevant data on Natura 2000 habitat and species monitoring and research, and be able to interact regularly with experts in order to benefit from improvements in knowledge on habitats and species.

It will also be useful to establish priorities in terms of the areas that should be targeted to achieve the conservation objectives. These areas may correspond to the distributions of the habitats and species that will be targeted and where the pressures and threats to their conservation are significant (eg. abandonment, intensification or change in agricultural practices). At its simplest, locational targeting might be to areas that are known to hold the target habitats and species. However, targeting might go further and identify areas that are especially important for target habitats and species, thereby increasing the efficiency of the scheme.

Conservation measures for Natura 2000 species and habitats have the potential to contribute to other policy goals that aim to promote and restore environmental public goods and ecosystem services, such as protecting and enhancing carbon in soils, preventing soil erosion, improving water quality, and improving public access to nature (Whittingham, 2011). It is therefore important to think about how other policy areas can support Natura 2000 farmland management, and try to integrate them into the planning wherever possible.

Recommendations:

- Ensure conservation objectives are defined in relation to the **best available knowledge about the current (baseline) status of habitats and species** (for example, using national Article 17 monitoring data as a guide, and data on pressures and threats).
- **Support existing farming systems that are preserving habitat quality**, such as HNV farming areas.
- **Identify important areas** in relation to the defined conservation objectives, eg. areas that are at risk from pressures of intensification or abandonment, but also farming systems that are preserving habitats and species.

- Ensure **cooperation among nature and agriculture authorities and relevant stakeholders** to define strategic priorities and conservation objectives in relation to Natura 2000 that can be achieved through implementation of suitable agricultural management.
- Provide **publicly accessible information** on strategic priorities and conservation objectives in relation to agricultural habitats and species.
- Ensure continued Natura 2000 **monitoring and improvement of knowledge on conservation status objectives**.

Box X. Strategic approaches aimed at wide-scale conservation of particular habitats

Agri- environmental measures for semi-natural grassland in Slovakia

Slovakia has developed a national programme of agri-environmental measures (AEM) for supporting extensive farming on semi-natural grasslands over the whole country. The Programme defines particular agricultural practices for specific habitat types grouped into seven categories: Dry Grasslands, Mesoic grasslands, Mountain hay meadows, Wet grasslands of lower altitudes, Alluvial Cnidion grasslands, Wet grasslands of higher altitudes, Fen and Molinia meadows, High- mountain grasslands.

These habitat types were defined on a national level according to the National Grassland Inventory (Šeffler et al. 2002). Slovakia's grassland inventory is not only one of the best developed in Europe, but also the one best integrated into agri-environment support, though it needs to be updated. The AEM for semi-natural grassland now only supports areas recognised as having a minimum biodiversity value (High Nature Value), including Natura 2000 sites. The AEM also covers the specific needs of each Natura 2000 site.

Farming boreal Baltic coastal meadows in Estonia

In 2001, the Estonian Ministry of Environment launched a national scheme for the restoration and management of the Baltic coastal meadows. The first step was to restore these meadows to a level where they could once again be regularly grazed and mowed. The restoration work was mainly done by local landowners and farmers who entered into management contracts with the Ministry of Environment. Later on, the Ministry of Agriculture developed a dedicated agri-environment scheme for semi-natural habitats under Estonia's RDP Programme (2007- 2013). Many of the farmers who had started with the Ministry of Environment's scheme subsequently joined the RDP scheme.

The agri-environment scheme also targeted a much larger area than before and covered not just Baltic coastal meadows, but also other types of semi-natural habitats such as wet meadows, wooded meadows, wooded pastures, alvar habitats, flooded meadows and fen meadows, juniper thickets, heaths and grasslands on mineral soil – all of which are habitats of High Nature Value and protected under the Habitats Directive. Although managed by the Ministry of Agriculture, the scheme is run in close cooperation with the State Nature Conservation Centre, which comments on, and approves, each agri- environment application. The close cooperation of the two Ministries is a major element of success. As far as coastal meadows are concerned, 10,000 ha have been included in the agri-environment scheme so far, which represents around half of all coastal meadows in the country, and around 950 management agreements have been established to date.

See further details in the case studies description in [annex 3](#).

5.2. Develop instruments and management measures and ensure farmer/land manager participation in their design

Once the targets and conservation objectives and needs have been identified at the relevant scale, it will be necessary to develop and select the appropriate instruments and management measures to achieve those objectives.

Being clear about the objectives to be achieved is critical to enable the design of policy responses that include not only the optimal set of policy measures to address the issues and the correct mix of management actions in the menu of options on offer to farmers, but that also ensure coherence between different measures, particularly in relation to their eligibility criteria and management requirements (Polakova et al 2011).

5.2.1 Clearly define the obligatory conservation measures and those based on voluntary incentives

It is important to clearly define the obligatory conservation measures and the measures based on voluntary incentives. Farmers cannot be compensated under the CAP or other EU funds for practices that have been made compulsory by law. These compulsory management requirements form the baseline on which voluntary schemes build, so the additional requirements need to be compatible and complementary with the baseline. However, the Natura 2000 payment is designed to compensate farmers of Natura 2000 areas for the obligatory conservation measures defined for a site or group of sites (eg. in management plans or statutory measures that apply to the sites).

Voluntary conservation measures can be funded for example by agri-environment payments. These payments can be also combined with the Natura 2000 payment and Pillar 1 direct payments. It is important that obligatory management requirements are clearly differentiated from voluntary requirements. This is particularly important for the choice of the appropriate support instruments (e.g. Natura 2000/AE payment) for the conservation measures.

The design and structure of both voluntary incentive schemes and mandatory requirements, such as those required under GAEC standards will need to vary according to the conservation objective being pursued.

It is necessary to consider the interactions between different policy instruments, and to set up a suite of policy instruments that work synergistically, avoiding any potential conflicts between policy measures. For instance, more active linkages could be made to ensure that the design of agri-environment measures builds on the management required under GAEC, eg through using agri-environment schemes to introduce wider field margins than those required under cross compliance (Polakova et al. 2011)

Recommendations:

- Clearly define for each Natura 2000 site which conservation measures are **obligatory** (and can be compensated through Natura 2000 payments) and which conservation measures are encouraged by **voluntary** incentives

- Ensure that restrictions on farmers from **other regulations do not conflict** with the conservation measures (if there are conflicts, exemptions or modifications to the other regulations need to be sought).
- Ensure a regular revision of conservation measures in order to incorporate **any expected new obligations on farmers**.

5.2.2 Identify suitable approaches and management options

Different management approaches are needed in different agricultural conditions, eg maintenance of existing farming practices may be enough in extensive systems, while profound changes may be needed in more intensive farming systems.

The challenge is to identify the most appropriate and feasible measures to maintain, enhance or restore habitats and species that are associated with agricultural environments. A spectrum of measures may be needed, from the highly specific to the broader brush. Different approaches will be suited to different circumstances and can be used alone or in combination to achieve the biodiversity outcomes required in different areas in the most effective and efficient way possible (Polakova et al 2011).

Strategic approaches/horizontal measures can be used, eg. for certain habitat types/species across a whole region or country, as in the case of grasslands conservation in Slovakia or Baltic meadows in Estonia (see box X and case studies in annex 3 for further details). In some situations, a few simple requirements that can be applied across the whole farmed landscape may be useful. On the other hand, more specific local approaches may be required in certain areas, eg. including highly tailored and targeted measures that are best suited to the specific management needs of a particular species or habitat in a specific location. It is especially important to understand the life cycle and ecological requirements of species when designing management measures for particular species. Moreover, local conditions can introduce some variation in the specific needs of habitats and species.

Measures to ensure the maintenance of an existing habitat will require a different approach to that required for restoring or recreating a particular habitat. Some habitats have been affected by abandonment or inadequate management (and other pressures such as eutrophication or invasive species) and therefore may need restoration actions before appropriate farming practices can be reinstated. Restoration of abandoned land may need to be funded and managed by public organisations or NGOs before farmers can be recruited and supported to continue management (see eg case study from Estonia), although if adequate funding is made available, farmers can carry out the restoration. Funding for restoration can be mobilised from various sources, including LIFE, Pillar 2 of the CAP, structural funds, private initiatives and public-private partnerships (see Section 4).

5.2.3 Define and develop specific measures

National-level schemes can help target measures towards strategic priorities, but are often not ideal because they do not always match with the local landscape and biodiversity or the local farming culture. Local, bottom-up agri-environment initiatives are often more attuned to local conditions and therefore more acceptable to local farmers and more effective.

Where objectives are clearly articulated, generally appropriate management options can be identified to address them and hence making them much easier to translate into effective implementation on the ground (Polakova et al. 2011). Examples of this include the use of the agri-environment measures to develop schemes in specific locations for particular species, for example the Little Bustard (*Tetrax tetrax*) (France), the common hamster (*Cricetus cricetus*) in the Netherlands (see case study in [annex 3](#)) and Germany or the Corncrake (*Crex crex*) in Scotland (UK) (see for example RSPB and BirdLife International, 2011).

Development of suitable instruments and measures must take into account national and regional conservation priorities, but also involve farmer and land manager participation in scheme design in order to ensure measures are fit for purpose at local scales.

5.2.4 Involve farmers/land managers in the design and implementation of measures and ensure that measures correspond with Natura 2000 sites conservation plans

Successful schemes need to combine some top-down strategic planning with bottom-up development of appropriate practical management measures. It is also important to incorporate local knowledge in the design of conservation measures.

Without the commitment of farmers and local people the measures will not work. Involving at the stage of measures' design local stakeholders, including site managers, NGOs, local authorities, and land users (forestry, hunting, recreation etc.) improves acceptance and generates a feeling of collective responsibility and local ownership, which is one of the most important success factors for site management (COPA-COGECA, 2010; DDH Consulting A/S, 2005).

Natura 2000 designation has often generated fears and misunderstandings, which if not addressed can give rise to mistrust and potential conflicts (Eurosite, 2010). Member States are therefore advised to develop management agreements for Natura 2000 sites using participatory approaches that involve all key stakeholders, and to use this process to plan suitable measures and schemes (Bouwma et al, 2010).

Not all sites will require a site management plan, as approaches to management planning of Natura 2000 sites vary among Member States, but the planned measures (eg. agri-environment contracts) need to contribute to the achievement of the specific conservation objectives for each site. The management agreements need to identify the status of habitats and species, and provide guidance on appropriate management options.

Balancing the potentially different management requirements for different species and habitats on a site can be very complex. However, the traditional agricultural management in areas where the species and habitats survive can provide solutions that are well suited to the local needs. For instance, floodplain grasslands in Slovakia host several butterfly species included in the Habitats Directives, such as *Maculinea teleius*, *M. nausithous*, and *Lycaena dispar*, which are closely connected with traditionally used alluvial meadows (Ružičková et al. 2007). These species were adapted to traditional mosaic mowing, as the site was never mown in its entirety at once. Mosaic management is also important for *Crex crex* especially in the years with shorter flood periods. In contrast, other bird species of European

importance like *Lanius collurio* or *Ciconia nigra* may benefit from large-scale mowing, because freshly mown grasslands are very attractive food sources.

It may be very useful to define in detail the measures to be carried out on farm level, taking into account local conditions and the farmer interests. There are numerous examples where farm plans are prepared through the collaboration of advisors and farmers. Consultations with farmers appear to be a very efficient tool that contributes to elaborate farm plans well adapted to farmers' needs as well as to biodiversity conservation priorities. Farm plans can be evaluated on the basis of available data and documents, such as the management plan of the area, biotope mapping, databases of nature conservation values, etc.

Recommendations:

- **Ensure the integration of top-down strategic planning with bottom-up consideration of local issues in the development of agri-environment schemes:** schemes need to take into account national and regional conservation priorities, but they also need farmer and land manager participation in scheme design in order to ensure they are fit for purpose at local scales; for example it may be possible to simplify management on the basis of experience.
- Ensure that the selection of management options and measures and their detailed prescriptions are compatible with, and if possible, developed together with, Natura 2000 site management plans and implemented as part of **whole-farm conservation plans**.
- **Develop measures at farm level through the elaboration of farm plans** with the participation of farmers and advisors, and also provide appropriate advice for their implementation and monitoring.
- **Learn from best management practices** and from best scientific evidence by consulting conservation experts and managers both in the country and internationally.
- **Consider traditional knowledge and practice** where it has proved to be effective in preserving habitat quality.
- Mobilise a range of funds and organisations to **restore abandoned habitats** so that farming activities can be reinstated.

Box X. Tailoring measures to the local conditions with the participation of farmers and land managers (see case studies in annex 3 for further details)

Farming for Conservation in the Burren (Ireland)

A notable example of agricultural measures highly tailored to the preservation of particular habitats is found in the Natura 2000 sites in the Burren area, where traditional practice of winter grazing by cattle, known as 'winterages', has been long valued for its capacity to maintain the rich diversity of species and habitats existing in the area. A specific agreement tailored for the Burren under the main agri-environment programme in Ireland was applied in the area since 1995. Then a pilot scheme funded with LIFE ('BurrenLIFE') developed a model of sustainable agriculture based on the implementation of farm plans that were revised annually, following in-depth consultation between the farmer and the project team.

Based on those previous experiences, the Burren Farming for Conservation Programme (BFCP), has been funded since 2009 under Pillar 1 of the CAP, using Article 68(1)(a)(i) of EU Regulation 73/2009. While participants are provided with advice on how to maximise the environmental benefit from their land (via a site visit, development of farm plans and provision of best practice guidance), farmers are expected to use their own initiative to create the optimal crop of species-rich grasslands. Actions and priorities are therefore suggested by the farmer; the BFCP team (funded by the National Parks and Wildlife Service) will then advise on which actions the scheme can support. The innovative compensation arrangements developed for the scheme are considered key to achieving the outcomes desired. All works are proposed by the farmer and individually mapped and costed by a trained advisor. Farm plans are now quite simple and clear, made up of just 2-sides of A3; one side has a map of the farm identifying important habitats, cultural features and proposed actions, and the other a list of actions with a costing attached to each one.

Grassland management in the Krkonoše National Park (Czech Republic)

Since 2010, grassland habitats are managed according to the Management Plan of the National Park and the SCI Krkonoše that define conservation priorities and agricultural practices for the following ten years. According to the plan, favourable conservation status of grasslands (habitats and species) should be maintained as well as connectivity and coherence of existing ecosystems.

A pilot initiative to develop a model of "nature-friendly management" at the farm level has been developed in the Park; it aims to maintain and improve the status of habitats through farming that is economically viable and well adapted to local conditions. The objective is also to harmonise measures for the protection of different species and habitats on farm level and to avoid biodiversity degradation due to inappropriate farm practices supported from various policy instruments (e.g. removal of shrubs under AEM could be harmful for certain butterflies). The measures are defined in farm plans and are targeted to species rich grasslands and to selected species of national and European importance (e.g. *Crex crex*). The farm plan describes the natural values present on the farm and defines detailed management prescriptions for each polygon of farmland. A list of available measures will be based on existing agri-environmental measures, accompanied by specific measures for grasslands and arable land. As regards the measures, emphasis is put particularly on more flexible late mowing, diverse grazing regimes, support of partial (strip, mosaic) mowing, decrease of livestock per hectare, and support of exceptions from general rules with permission of a nature conservation authority. The plan may include specific prescriptions for the protection of certain insect species (e.g. parcels without management), for bird protection on meadows (e.g. mowing from centre), or on arable land (e.g. decrease use of fertilisers), etc. An efficient advisory system and regular communication with farmers contributed to increase the environmental awareness.

5.2.5 Ensure that financial compensation payments are matched to scheme requirements; ensure transparent and simple administration procedure

As agri-environment schemes can only compensate for income foregone by specific activities, the payment calculations need to be sufficiently adaptable or flexible to enable necessary adaptation and innovation and to keep up with changing costs.

Calculation of payments needs to correspond to the cost of current normal farming practices in the area where the scheme is implemented. If the payments are not revised regularly, some farmers may be over-compensated, leading to an inefficient use of public funds, whilst others are under-compensated, risking that they drop out of the scheme and do not achieve any positive impact for biodiversity. The payment system needs to be transparent and accountable in order to build trust with farmers, conservation organisations, and the general public (Birdlife International, 2009b). Most Natura 2000 areas will also require funding for restoration actions (eg controlling invasive species) or one-off infrastructure investments (eg fencing) before extensive management can be reinstated.

A rather new, although also challenging, way of designing schemes is to base payments on results (eg flower-species richness), rather than narrowly defined management prescriptions (eg grazing regimes and hay cutting regimes). This approach can be effective in certain conditions and enables farmers to use their knowledge and judgement to achieve the desired results. Certain flexibility also enables farmers to make adjustments according to, for example, variations in weather from year to year. However, this approach does result in the farmer accepting higher risk of reduced payments if their results are not as they expected. Such schemes may not therefore always be popular or appropriate.

Recommendations:

- Ensure that **cost estimates are centrally collected and monitored**, and ensure transparency by making cost estimate information **publicly available**.
- Ensure that **payment levels are revised regularly** to keep up with changing management requirements (however this will increase administrative costs).
- Provide specific **support for restoration measures**.

Box X. Examples of cost estimates and suitable compensation

Innovative compensation arrangements in the Burren Scheme

The Burren LIFE Project was able to produce a set of accurate costs for the various conservation works planned for the area, as well as developing a series of best practice guides on grazing, feeding, scrub removal and farming for conservation. The Burren Farming for Compensation Programme (BFCP) has put into practice a system where the payment is based on field-level assessments habitat condition and environmental services delivered.

The innovative compensation arrangements developed for the scheme are considered key to achieving the outcomes desired. For instance, the payment for the production of species-rich

grasslands (measure 1) is based on field-level assessments of habitat condition and environmental services delivered. Each field including this type of grasslands is given a score of between 0-10 (where 0 is very poor and 10 is exemplary), based on criteria including grazing levels, feeding systems, scrub and weed encroachment, condition of water sources and site integrity. This score, out of a proportion of ten, is multiplied by the field area (ha) and by the maximum payment per hectare (€120 for the first 40 ha, €60/ha for 40-80 ha, and €30/ha for 80-120 ha) to determine the payments made for that field. Payments for actions for capital enhancement (measure 2) are made at rates of between 25- 75% of the total costs, depending on the relative environmental benefits provided. Requirements of payments include the cessation of silage feeding in all Annex I habitats (both those designated and not designated) and meeting cross compliance and GAEC requirements on the whole farm. Payments are made only following satisfactory compliance checks of outcomes delivered.

A key component of the popularity of the scheme amongst farmers is the freedom given to farmers to carry out the actions they deem most appropriate (i.e. farmers are allowed to 'opt-in') as well as the outputbased payment system which farmers feel is 'tough but fair'.

Pastoral management plans in France (TO BE REVISED)

Pastoral Management Plans have been produced in *Haute-Alpes* in France in the framework of agri-environment measures aimed at maintaining pastoral areas consisting of a mosaic of habitats. The PMP are adapted to the farming system and to the conservation of a structural and functional diversity. Individual PMP are subscribed by a single farmer while collective PMP are subscribed in high mountains by a group of pastoral farmers and implemented by a shepherd. Different measures are available under the agri-environmental scheme and the grants are based on the cost of the works to be carried out under each measure.

The amount of each grant is decided at the national level while the combination of the different grants is decided at regional level and supervised by national rules.

There is a minimum threshold (300€) and a maximum threshold (7,600 €) for the cumulated amounts of all measures chosen by each farm. In addition to the grants given for extra hours of work or the extra cost related to the commitment to such agri-environmental measures, other grants are obtained from the EARDF with the allowance under the Less Favoured Areas regime, that reach its maximum in this area.

All allowances granted by the CAP have significant implications in the economy of this type of farming. The expenses related to facilitating (a key factor in achieving success) are not included in the grants and come from other funding sources.

5.3. Ensure that farmers receive a package of measures that provide sufficient support to ensure the economic and social viability of the necessary extensive farming practices

Extensive farming practices to manage Natura 2000 habitats need to be economically and socially viable, and this depends on farms receiving an adequate and reliable baseline of support from the available measures (Bouwma et al, 2010; Katona-Kovacs and Dax, 2008).

The largest source of funding is the CAP Pillar 1 (Single Farm Payments or Single Area Payments). All agricultural habitats of Community interest should be entitled to Pillar 1 payments, so resolving the issues around eligibility for these habitats is a priority (see Section 4.5.1 for discussion of eligibility issues). Less Favoured Area / Natural Handicap and

Natura 2000 payments are designed to compensate farmers for the extensive management measures these habitats need, in addition to Pillar 1 payments. It is important to clearly define the obligatory conservation measures that apply to each Natura 2000 area in order to enable the application of the Natura 2000 payment (see [Section 4.4.2](#) for further discussion). Agri-environment schemes can also be tiered onto these other payments to create a package of payments for Natura 2000 farmers and land managers (see below).

Natura 2000 farmland can also benefit from initiatives such as ecotourism, added value for agricultural products from Natura 2000 farmland, quality labels, and support for direct marketing structures. Long-term protection of Natura 2000 biodiversity also requires a regeneration of cultural and social capital within farming communities, through measures that facilitate the embedding of environmental values, knowledge, and skills, more than just compensating for economic capital lost (Burton and Herath Paragahawewa, 2011). This can include recognising and rewarding increased ecological expertise of land managers through awards, publicity, training etc. and encouraging farmer cooperatives or associations to facilitate Natura 2000 management and gain added benefits, and embedding Natura 2000 management in a regional sustainable development strategy (see [Section 4.7.7](#) for more detail). Market-based schemes implementing Payments for Ecosystem Services have shown potential to support conservation management (see [Section 4.18](#) for more detail).

Recommendations:

- Consider possible implications for farmed Natura 2000 areas when implementing future **eligibility rules for CAP direct payments**.
- Foresee that farmed Natura 2000 areas receive **LFA or Natura 2000 compensation payments** wherever feasible (if the Natura 2000 measure is being implemented).
- Use payments for conservation of traditional livestock breeds, and other schemes to fund extensive livestock grazing.
- Encourage initiatives that build capacity in farming communities to value, manage and benefit from Natura 2000 habitats eg using **cooperation projects** and/or the **Leader approach**.
- Add value to agricultural products in Natura 2000 through **labelling, marketing and promotion in local and regional markets** (eg. through contracts with hotels and restaurants (
- **Encourage opportunities for Payments for Ecosystem Services** to provide or supplement funding for conservation actions.

INCLUDE INFORMATION FROM CASE STUDIES (eg see case studies from Austria and Luxembourg in annex 3).

5.4. Target areas with key Natura 2000 habitats and species and ensure adequate coverage and uptake in those areas

To have a significant positive impact on the conservation status of key agricultural habitats and species, measures must be implemented effectively in all relevant Natura 2000 areas, and each Member State should ensure adequate coverage and levels of uptake by the farmers who farm in those areas. The measures need to be implemented at a sufficiently large scale to ensure effective and efficient management of all sites (Tscharntke et al, 2005).

The areas targeted and overall uptake of measures also needs to maintain and/or enhance sufficient coherent habitat to enable the species to maintain or build up a viable population (Whittingham, 2007). Therefore, targeting only the areas that currently hold populations may not be sufficient to ensure long-term conservation success ((RSPB & Birdlife International, 2011).

Targeting of agri-environment type measures clearly requires reliable, up-to-date and extensive ecological data (eg inventories, habitat maps and species atlases), and therefore surveys need to be carried out and records compiled and mapped. Such actions can be costly, and may require considerable investments to increase the capacity of nature conservation organisations. But such actions are likely to be cost-effective if they reduce the area over which measures need to be applied to achieve a desired conservation outcome.

Targeting is likely to be very important for many Natura 2000 habitats and species as these may not always be effectively conserved by broad-scale (eg national) agri-environment measures that primarily aim to maintain a habitat in general terms. For example, the Slovakian semi-natural grassland scheme found that broad-scale horizontal measures were not very effective as different species and habitats often have different conservation needs, and these may also vary locally. The scheme therefore aims to improve its effectiveness by developing more specific measures that are targeted to priority areas (eg Natura 2000 sites) with management prescriptions agreed (and monitored) at field levels where necessary. Bottom-up design of measures through locally coordinated dialogue with farmers is therefore required to achieve this.

Landscape-scale measures aimed at enhancing or maintaining landscape complexity would enhance the effectiveness of AES for preserving biodiversity in farmed landscapes (Concepción et al, 2008; Concepción et al, 2012). It is possible to design schemes that incentivise most farmers in an area to commit at least a small part of their land to the conservation measure(s) (Barmière et al, 2011).

It may sometimes be more efficient to encourage farmers to group together in cooperatives or associations in order to sign agri-environment agreements, rather than signing agreements with individual farmers. In the Altmühltal Natura 2000 dry grassland region in Bavaria, Germany, Land Care Associations have been crucial for the support of the sheep farmers, who coordinate extensive grazing by around 25,000 sheep and produce certified Altmühl-valley lamb⁹⁰. Coordination between farmers is also necessary to ensure that

⁹⁰ <http://www.mulewf.rlp.de/natur/naturschutz/partnerbetrieb-naturschutz/>

management measures are not carried out synchronously in all areas, eg mowing, so that there is enough heterogeneity in the habitat that all species benefit.

Recommendations on targeting, coverage and uptake:

- **Target measures** to Natura 2000 areas that hold significant proportions of key habitats and species and are at risk from pressures for intensification or abandonment (for example, using national Article 17 monitoring data, and/or data on pressure indicators such as those relating to the risk of abandonment), but also support existing farming systems that are preserving habitat quality (such as HNV farms);
- Ensure the **budget is sufficient for the planned scale of improvement**. Clearly identify the Natura 2000 agri-environment measures in order to be able to clearly measure outcomes in relation to the funding allocated for Natura 2000 (AFI, 2008; Birdlife International, 2009b).
- Ensure that the Managing Authority has **sufficient administrative capacity** and a **well-developed regional and local network** to develop and implement the measures or agri-environment scheme (Cooper et al, 2010).
- **Monitor uptake and coverage** of the measures in relation to each relevant Natura 2000 habitat and species, check against targets, and **review** the scheme design and approach if targets are not being met (see below).
- **Use group agreements** where appropriate to get sufficient scale
- Consider **defining areas** where all farmers with targeted habitats can be guaranteed participation in tailored schemes or measures for the specific issues of concern in the area (as in UK ESAs)

5.5. Develop local partnerships, promote participatory management planning, and resolve conflicts.

Local partnerships play a crucial role in implementing Natura 2000 conservation management on the ground. The reach of agri-environment schemes at the landscape scale can be greatly boosted by regional associations and by the involvement of non-farmer groups, as demonstrated by the Dutch environmental co-operatives (Franks & Mc Gloin, 2007) and the German Land Care Associations (see section 4.8.3). These co-operative associations link nature conservation groups with local farmers and local communities across a region, and can often bring opposing interest groups work together to care for Natura 2000 sites.

Local coordinators can supervise the implementation of activities, mostly done by local farmers, as well as monitor the project outcome. The basis for successful projects is the close cooperation with farmers, local communities, conservation groups and government authorities.

Local partnerships with organisations that coordinate groups of farmers have proved essential for the adjustment of measures and delivery of results from agri-environment in areas where the schemes are new for farmers and authorities (RSPB & Birdlife International, 2011). In some Member States, many traditional farms are too small to qualify for CAP

subsidies, and in these areas group agreements with a coordinating organisation are also particularly important. For example, in Romania the organisation Fundația ADEPT works with small-scale farmers in the Târnava Mare Natura 2000 site to bring them into support schemes and encourage improvements in scheme design to ensure accessibility for small-scale farmers (see case studies in annex 3).

Recommendations:

- **Involve and use local partnerships** wherever possible to improve coverage, implementation, and acceptability of schemes.
- Ensure that the selection of agri-environment options and their detailed prescriptions are compatible with, and if possible, developed together with, **Natura 2000 site management plans and implemented as part of whole-farm conservation plans.**

5.6. Ensure sufficient communication, and provide specific advice and training for farmers and land managers

Farmers and land managers need to be aware of the broad conservation objectives for the habitats or species they manage, understand what is expected of them, and understand how to apply the conservation measures (Bouwma et al, 2010). Farmer motivations for protecting and helping biodiversity differ, from intrinsic satisfaction in achieving goals, to extrinsic motivation driven by incentives (Ahnström et al, 2009; Matzdorf & Lorenz, 2010).

Providing regular feedback on the results of the scheme clearly has a motivating effect (Herzon and Mikk, 2007; Smallshire et al, 2004), and builds trust between farmers and the authority implementing the agri-environment scheme (Zechmeister et al, 2003). It helps greatly if farmers feel they are being remunerated for environmental services rather than for less intensive management. If farmers can themselves assess outcomes by measuring a clearly defined, appropriate target (or understand how the advisor measures the outcome), their motivation and engagement with the scheme improves significantly (Burton & Herath Paragahawewa, 2011; Matzdorf & Lorenz, 2010).

Wider public communication is also very important to create a positive image of the target species and habitats, and of those who make efforts to protect them.

Recommendations:

- **Clearly communicate to target farmers** the importance of the Natura 2000 network, the relevance of the agri-environment scheme to the Natura 2000 habitats and species, what benefits they can get from the scheme, and what they are required to do if they sign up, using meetings, brochures and websites.
- **Translate conservation objectives into clear simple indicators of success** for each individual site, farm, or agri-environment contract.

- **Provide good quality and consistent advice**, as farmers are most likely to access one-to-one advice provided by advisors visiting the farm. If face-to-face contact is not feasible, it is helpful to identify the channels of communication most preferred and used by farmers (Ahnström et al, 2009).
- **Understand that farmer motivations differ** and try to ensure that communication and training can be accessed by different types of farmers (Ahnström et al, 2009; Matzdorf & Lorenz, 2010).
- **Encourage peer-to-peer networks** of farmers and land managers in which they can learn from and motivate each other.

Box X. Specific advice for farmers

The “Partnerbetrieb Naturschutz” programme

The “Partnerbetrieb Naturschutz” initiative offers farmers integrated agricultural and conservation advice for the whole farm and dialogue-based planning. The advisory teams include both the consultants who administer the agri-environment schemes under contract to the Rheinland-Pfalz Ministry of Environment, Farming, Food, Winegrowing and Forestry (MULEWF), and the agronomic advisors of the six regional Agricultural Public Service Centers (Dienstleistungszentren für den ländlichen Raum DLR).

The farmer and the advisory team carry out a dialogue and situation analysis of the whole farm and its surrounding landscape. A conservation plan is developed for the whole farm, including an analysis of the farm’s conservation potential and farm-specific conservation objectives, using maps and aerial photos and land designations, with a special focus on Natura 2000 habitats and species and conservation objectives under the Water Framework Directive. The farmer and advisory team then develop and agree on a farm-specific conservation plan. The team offers an ongoing one-to-one advisory service, evaluation and feedback. Results are jointly measured and evaluated by the farmer and team annually.

Farmers are looking for answers that are specific to their farm, such as what effect will extensive pasture management have on the farm’s milk production? What is the point of a certain management measure? What is the impact of not doing something? What environmental resources, habitats or species can I conserve on my farm? Providing convincing answers is a key element in building trust in proposed conservation measures (see further details in the description of this case study in annex 3).

5.7. Facilitate adaptive management and learning

Adaptive management that combines research with action on the ground, enabling practitioners to learn from successes and failures and adapt actions accordingly, is essential for achieving conservation targets (Gibbons et al, 2011). Ensuring clarity and accountability in relation to conservation targets should be matched by flexibility in the specific management measures needed to achieve those targets.

Management needs to be adjusted to changing environmental conditions, and also needs to be adapted to the improving conservation status of the habitat (Whittingham, 2011) and between different areas (Perkins et al, 2011). Monitoring can use test plots, case studies, quantified impact models, surveys, etc. Schemes also need to have the flexibility to allow mistakes to be fixed and prescriptions based on incomplete information to be improved, while testing is essential to ensure that management delivers results (RSPB & Birdlife International, 2011).

Farmers' knowledge about local environmental conditions can be effectively used to improve management recommendations, and increase simplicity and cost-effectiveness (Matzdorf & Lorenz, 2010). Even though long-term contracts are needed for changing farming practices and the development of nature values, they should not restrict the flexibility for the enterprising farmer too much.

Flexibility also brings a risk for managing authorities as it is more difficult to ensure compliance with the requirements if the latter may often change depending on some particular circumstances.

Recommendations:

- **Support innovation**, where this can increase the effectiveness or efficiency of conservation measures, by encouraging farmers and land managers to experiment with new management techniques, and by learning from successful practices used elsewhere.
- **Learn from management successes** by regularly adapting schemes to incorporate best practices based on evidence of success.
- Consider implementing **pilot schemes where there is uncertainty** about what measures are most suitable.

Box X. Adaptive management for hamster conservation in the Netherlands

Hamster-friendly management has been implemented in the Netherlands with an effective collaboration of farmers and researchers. Direct and continuing advice and one-to-one support to farmers has significantly contributed the success of the project.

During the project, the researchers informed and helped farmers with crop management and other hamster aspects, answering questions such as "Is it possible to harvest?" or "I have found a burrow, what should I do?". A hamster coordinator carries out the monitoring, checks calls for new management agreements, and checks compliance with the crop management measures.

Research results and flexible management regulations allowed adaptive management. The management advice was altered significantly during the project as a consequence of increased insights from the hamster monitoring research carried out by Alterra, Wageningen & Radboud University Nijmegen. The management flexibility was possible because the project was officially an experiment under EU-regulations, allowing the involved parties to change regulations and management prescriptions. For example, a 20 m survival stripe was agreed in yearly contracts, so each year researchers could approach farmers who had the optimal location to benefit hamsters (see further details in the description of this case study in annex 3).

5.8. Monitoring and evaluation

Effective monitoring and evaluation is critical to being able to assess the effectiveness and efficiency of measures in delivering their objectives, and to allow schemes and management practices to be adapted and refined over time (Poláková et al 2011).

For example in England (UK), an official review of agri-environment schemes in 2002 – 2004 led to the development, piloting and implementation of a completely new scheme in 2005 (Environmental Stewardship -ES) that built on the successful elements of the two previous schemes. ES was subsequently reviewed in 2008 to monitor its effectiveness in meeting environmental targets (Natural England, 2009).

When different methods are tested, monitoring is essential to detect the effects of the different methods applied.

Monitoring and evaluation must be carried out at different levels. Regular monitoring should be an integral part of every agri-environmental programme. Monitoring should allow assessing the uptake and coverage of the measures, any possible difficulties and constraints for their implementation, as well as their impact in relation to the pursued conservation objectives.

It is important to design monitoring schemes that can be applied at farm level using suitable indicators that can be easily verified.

Funding should be made available for monitoring the impacts of management activities at farm level.

Recommendations:

- Ensure **sufficient capacity to monitor outcomes**.
- Define adequate monitoring **procedures and indicators that can be easily applied and understood by farmers**.
- **Involve farmers** in monitoring and **communicate the results** and the main conclusions of the corresponding evaluations to them.

INCLUDE EXAMPLES FROM CASE STUDIES

ANNEXES

Annex 1. Key agricultural habitats and species

Annex 2. Management recommendations for each Natura 2000 agricultural habitat type

Annex 3. Case studies compilation

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