European Commission

Farming for Natura 2000

Guidance on how to support Natura 2000 farming systems to achieve conservation objectives, based on Member States good practice experiences

Environment

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Front cover: farming in Mala Fatra mountains, Slovakia, © Gettyimages/phbcz

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The importance of farming for Natura 2000

Farming has been a major contributor to biodiversity, thanks to centuries of diverse farming traditions which has resulted in the development of an intricate patchwork of semi-natural habitats across the landscape. This has, in turn, attracted a wide range of species of fauna and flora.

The EU Member States have adopted two key pieces of EU legislation – the Habitats[1] and Birds[2] Directives – to conserve Europe's most valuable species and habitats across their entire natural range within the EU. A central element of these Nature Directives is the creation of an EU-wide Natura 2000 Network of sites that must be managed and protected to ensure the conservation of the habitats and species of Community interest. But Natura 2000 sites are not strictly protected areas where all activities are systematically excluded. It adopts a different approach: one that fully recognises that humans are an integral part of nature and that the two work best in partnership with one another.

Many of the habitats and species that are protected under the Habitats and Birds Directives are dependent on, or associated with, agricultural practices[3]. These habitats and species are now dependent on locally tailored extensive farming systems and practices for their continued survival. Yet, in the last 50 years, through the combined effects of farm intensification and land abandonment, farmland biodiversity has undergone a dramatic decline.

The importance of farmers for the Natura 2000 network is reflected in the fact that farmland makes up around 40% of the total area included in Natura 2000. Because a high level of biodiversity usually coincides with low agricultural productivity, most of the farmland in Natura 2000 is located in the more marginal farming areas. Typical examples include alpine meadows and pastures, steppic plains, open heathland and wet grasslands.

Most of the low intensity farming systems that are included in Natura 2000 have usually developed over time, with farm structures and farming practices being closely adapted to local conditions (Oppermann et al, 2012). Broadly, they include:

- livestock systems where the forage areas are mainly semi-natural vegetation, including pastures, heath and scrub;
- low intensity arable systems (for example on poor soils, dry, saline or waterlogged areas, or in remote locations), often in rotation with semi-natural fallow vegetation;
- low intensity permanent crops, such as old traditionally managed orchards and olive groves; and
- mixed farming systems with arable and/or permanent crops with livestock. Such farming systems also include farmland with a mosaic of low intensity agriculture and valuable landscape features, which can support a high species biodiversity.

[1] Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. Consolidated version 1. 1. 2007. http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

[2] Council Directive 2009/147/EC on the conservation of wild birds, codified version of Directive 79/409/EEC. Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:EN:PDF

[3] 255 species and 57 habitat types of Community interest are closely associated with agriculture.

A few Natura 2000 species are also found on intensively managed agricultural land. These include some internationally important wintering populations of geese and swans that graze intensive grassland and cereal crops in winter.

There is a considerable overlap between High Nature Value farmland areas and farmland in Natura 2000, as the farmed areas hosting habitats and species of Community interest are identified as HNV farmland.

In some of these areas, existing farming systems and practices are already compatible with the conservation of the species and habitats for which the site has been designated under Natura 2000, and the emphasis will be on finding ways to continue to support these farming practices and give due recognition to the farmers involved. In others, traditional farming practices may have been abandoned or converted to another form of farming that is less compatible to nature, in which case it will be necessary to find ways to re-introduce compatible farming systems or adjust existing practices so that they are able to contribute once again to the conservation of the habitats and species of Community interest for which the site has been designated.

This calls for a strong partnership approach between the farmers concerned, the public authorities responsible for both agricultural and nature policies and civil society at large. The present guide aims to illustrate how this partnership can be made to work effectively for the benefit of all. It provides an overview of the main issues to consider as regards the relationship between farming and Natura 2000 and offers a range of practical ideas, examples and recommendations on managing farmland in Natura 2000 sites, based on good practice experiences from across the EU.

The main drivers and pressures on Natura 2000 farmland

Extensive livestock management has become unprofitable in many agricultural regions resulting in either abandonment or intensification in the absence of financial support (Beaufoy and Marsden, 2010).

Abandonment of extensive traditional farming practices is the most important pressure on key farmland habitats and species of Community interest. 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 and 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 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 and Veenecology, 2005; Keenleyside & Tucker, 2010). Projections of areas currently most at risk from abandonment identify mountainous and hilly areas (Keenleyside & Tucker, 2010).

By contrast, the second most important pressure on key farmland 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. Many of the habitats are affected by a combination of abandonment in some areas and intensification in other areas.

Supporting the farming system

Many Natura 2000 farming systems are under threat. Farmers who deliver the essential management of key habitats and species often farm under difficult circumstances using labour-intensive systems on marginal land. They are extremely vulnerable to economic pressures to abandon their traditional farming systems and in some cases to cease production altogether.

It is therefore important to build an integrated package of support for Natura 2000 farmers that first ensures the economic viability of the extensive farming system on which the beneficial management depends, and secondly addresses the specific management practices needed for the conservation of the key habitats and species.

The first priority is to address the key threats of abandonment and intensification by ensuring that the farmer can continue (or resume) farming the land, and that the extensive farming system survives. The overall aim is to ensure the farming system is economically viable and support targeted at building the capacity of the farm infrastructure (and the farmer) and improving market income can help to achieve this aim.

When the underlying support for the farming system is in place then the support for the specific Natura 2000 habitat and species management practices will complete the package. This integrated package of support can be built up using a wide range of measures from both Pillars of the CAP, as explained below, and their delivery and implementation can be supported by information and advisory services which can be provided under both Pillars of the CAP. Other EU instruments, such as LIFE and ERDF and other available private and public funds can also be used.

The management requirements for Natura 2000

Member States have a clear responsibility under the Birds and Habitats Directives to ensure all habitats and species of Community interest are maintained or restored to Favourable Conservation Status. Natura 2000 sites have a crucial role to play in achieving this overall objective since they harbour the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

Once a site has been included in the Natura 2000 Network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community interest present, according to the Habitats Directive (article 6.1); they must also prevent any damaging activities that could significantly disturb those species and habitats (article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (article 6.3 and 6.4).

Member States are making significant efforts to ensure appropriate management of all designated sites, although the situation is quite variable depending on the countries, with

some of them having approved management plans or established conservations measures for all Natura 2000 sites while some other have only covered a percentage of the sites.

To ensure that each Natura 2000 contributes fully to reaching this overall target of FCS, it is important to set clear **conservation objectives** for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once the conservation objectives have been set, the necessary **conservation measures** that are required in order to fulfil these objectives and targets should be identified and negotiated with all involved so that they are effectively implemented. These must correspond to the ecological requirements of the habitats and species for which the site is designated.

A dialogue with all relevant stakeholders is needed to ensure that farmland management in Natura 2000 sites can contribute to the conservation of agricultural habitats and species. Farmers may have a very good understanding of previous land management that has led to conservation successes or failures.

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions), and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use). Appropriate instruments for implementing these conservation measures can include management plans specifically designed for the sites or integrated into other development plans, and/or appropriate statutory, administrative or contractual measures.

Agri-environmental agreements with farmers within the Rural Development Regulation are one example of a voluntary 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 management that does not involve any payment or incentive.

Horizontal measures can be suitable for certain habitat types/species across a whole region or country, or to tackle diffuse pressures such as eutrophication from agricultural run-off. In some situations, a few simple requirements that can be applied across the whole farmed landscape may be useful. Measures may also require no action (passive management). Furthermore, these measures may not necessarily be new, as existing measures can also contribute to achieving the conservation objectives.

On the other hand, more specific local approaches may be required in certain areas, including highly tailored and targeted measures that are best suited to the specific management needs of a particular species or habitat in a particular location. It is particularly important to understand the life cycle and ecological requirements of species when designing management measures for particular species. Local conditions can introduce some variation in the specific needs of habitats and species.

Farming practices that can contribute to maintain or improve the conservation status of key farmland habitats and species

Low intensity agricultural management is necessary for the continued existence and conservation of key habitats and species linked to agricultural practices in Natura 2000 sites. Restoration actions may also be necessary prior to the re-introduction of suitable long-term management.

These management measures will mostly be implemented by farmers and adequate support should be provided to them. Some farmers are already carrying out good management measures and it is important to recognise and support their role in conserving and managing these habitats. Others will need support to reinstate management on abandoned land or to refrain from intensification of farmland.

Most of the agricultural habitats considered in this guidance are managed by **grazing,** which require defining suitable stocking rates, seasonality and timing, using adequate stock species or a combination of grazers when appropriate, and some form of rotational grazing in some cases. For many habitats, particularly in mountainous regions, **shepherding** is an important management measure with a long cultural tradition that needs to be maintained and supported.

Mowing and hay cutting is also an important farming activity for semi-natural grasslands (meadows), which requires considering the appropriate timing and frequency, using adequate equipment and machinery and taking into account whether removing or not the cut hay depending on the habitat type. In a number of habitats, grazing is used in combination with cutting.

As regards the **management of suitable areas for key farmland species** it is important to ensure that all feeding, breeding and shelter habitat requirements are provided across all seasons and within the species' home range area, which may require a mosaic of different habitat patches. Habitat patches must be sufficiently large to maintain viable populations, or sufficiently connected to support meta-populations. Farmland habitats such as hedges, dry stone walls, ponds and terraces are key habitats for species associated with extensive agriculture that should be maintained or restored.

In areas where farmland habitats have been abandoned or are damaged by pressures from intensive agriculture, **restoration measures** may 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, reseeding to restore plant species diversity, controlling scrub, controlling invasive weeds and alien species and restoring hydrological management (e.g. by reversing drainage, restoring ground water levels and regimes, and flooding and river regulation).

Effective management of farmland habitats also needs to consider some crucial aspects. The **scale** at which conservation measures are implemented will influence 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. The complex structure of some key habitats underpins their species richness. To maintain **habitat diversity and heterogeneity,** management type and intensity must be varied and edge habitats maintained.

Management of farmland must be **locally adapted.** Agricultural measures must be tailored and targeted in order to be effective. The optimal 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. It is also important to consider site-specific management history, as habitats will often have adapted to and depend on the continuation of traditional regimes. Management planning should make use of both **expert conservation knowledge** and **local farming knowledge**.

Conservation trade-offs may be necessary, as different species 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 objectives.

EU funding for management of Natura 2000 farmland

Opportunities for funding Natura 2000 have been included in each of the relevant EU funds for the 2014-2020 financing period. In particular, the Common Agricultural Policy (CAP) has been and will continue being an important financial source.

In order to ensure a better use of the opportunities available for managing Natura 2000 sites under EU funds, the Commission has urged Member States to produce **prioritised action frameworks (PAFs)** for financing Natura 2000, which identify the strategic priorities and the measures to be carried out for the period 2014-2020 as well as the funding instruments that may be used to implement those measures.

The Commission has also 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. Core public funding from the EU and Member States will continue to be required to deliver the conservation benefits of the network.

The reformed CAP as a key source of funding for Natura 2000 farmland from 2014

The CAP represents one of the most important potential sources of EU funding for the management of farmland in Natura 2000 sites. The two Pillars of the CAP differ in terms of financing, functioning and structure although they have common objectives. Pillar 1 provides direct payments to farmers (and also funds other measures such as market interventions and export refunds). Pillar 2 offers a wide range of measures to support farmers and other land managers and rural communities, implemented through multi-annual Rural Development Programmes (RDP) prepared by national or regional administrations.

The new legislation introduces significant changes that are relevant to support Natura 2000 farming from both Pillars of the CAP. The four main EU Regulations of the CAP were published in December 2013 but the detailed rules on implementation, which will be published during 2014, are not covered here.

The focus of **Pillar 1** continues to be the provision of decoupled income support payments to farmers, but the structure and range of payments has changed considerably. From 2015 there will be some compulsory payments: a new Basic Payment Scheme (or continuation of the Single Area Payment Scheme), a 'greening' payment and an additional payment for

young farmers. Member States can choose to offer two additional components of direct payments, to farmers in areas facing natural constraints, and coupled payments to environmentally, economically or socially important types of farming that are facing difficulties. As an alternative to all these payments a much simpler direct payment scheme can be set up specifically for small farmers.

The '*green payment*' for agricultural practices beneficial to climate change and the environment comprises three measures with which most farmers entitled to Pillar 1 direct payments must comply: maintenance of *permanent grasslands*, and (in relation to arable land) *crop diversification* and *Ecological Focus Areas* (at least 5 per cent of arable land eligible for direct payments to be managed for ecological purposes, eg. as landscape features, fallow land, terraces and buffer strips). Farmers in Natura 2000 areas will only have to implement the greening practices that are compatible with Natura 2000 objectives. Certified organic farmers will receive the payment automatically without a specific obligation to comply with greening practices, and recipients of the Small Farmers Scheme are exempted from these obligations.

To protect *permanent grasslands:* within Natura 2000 areas Member States must designate environmentally sensitive grasslands which need protection (including those on peat and wetlands). For farmers in these areas the 'greening' requirement is to not convert or plough the grassland. Member States can choose to apply similar designations and protection to other environmentally important grasslands outside Natura 2000 areas. The requirement at more general level is the maintenance of the ratio of permanent grassland to the total agricultural area (compared to a specified, earlier reference year) does not fall by more than 5 per cent. MS can choose to apply this requirement nationally or regionally. They can also set this obligation at the level of individual farms.

Under **Pillar 2**, a wide range of measures can be used to support Natura 2000 farmland, in terms of land management, conservation planning and knowledge transfer and advice. One of the new EAFRD focus areas is "restoring and preserving biodiversity, including in Natura 2000 areas and high nature value farming, and the state of European landscapes". Relevant changes in relation to the previous EAFRD include: confirming the broadened scope of the agri-environment measure by renaming it 'agri-environment-climate'; recognition of the environmental and climatic benefits of collaborative action in particular but not only at the landscape scale, through the possibility of granting higher transaction costs in case of contracts involving more than one land manager; flexible rules on the duration of contracts after the initial period of applying the commitments; and extending the scope of the Natura 2000 compensation measure to cover farmland and/or forest land in other nature protection areas with environmental restrictions which contribute to improve habitat connectiviy (Article 10 of the Habitats Directive).

Member States can also create thematic sub-programmes within their RDPs, showing how they will use the measures available to contribute to the priorities set in the new regulation and to address specific needs in their national or regional contexts. The regulation identifies the needs of young farmers, small farms, mountain areas, short supply chains and climate change mitigation and adaptation and biodiversity as topics for thematic sub-programmes and allows Member States to raise the maximum rate of support for operations within these sub-programmes.

The two pillars of the CAP use different instruments but it is important that at farm level the **potential synergies** between them are used to support both Natura 2000 farming systems and management practices. It is important to consider the local conditions and to analyse which measures are best adapted to suppor t the conservation objectives in each area.

It is also very important to **combine the different measures so as to ensure that effective support is provided** to extensive and High Nature Value farming systems. 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).

All farmland in Natura 2000 should be considered for eligibility for CAP payments under both Pillar 1 and Pillar 2. In a number of Member States substantial areas of Natura 2000 farmed habitat have been deemed ineligible for direct payments under Pillar 1 in the CAP period 2007-2013. This is the responsibility of the Member States, and eligibility issues are often related to characteristic features of Natura 2000 farmland which are an essential part of their biodiversity value, but do not fit within the Member State's implementation decisions or within the flexibilities provided by EU eligibility rules. Issues include the presence of trees, shrubs and scrub on pastureland, farm or parcel size, land tenure, out-dated land registration records, and difficulties with GAEC standards that Member States have designed for more intensive farming systems.

CAP support to ensure economic viability of extensive Natura 2000 farming systems

The first critical step in ensuring that farming continues in Natura 2000 areas is to carefully consider possibilities provided in respect of the eligibility requirements for Pillar 1 payments taking account of the particular characteristics of Natura 2000 farming systems. When eligibility of the land and the farmer has been assured there are several payments from both Pillars of the CAP which can be used, often in combination, to underpin the economic viability of these farms, including:

- Basic Payment Scheme, Single Area Payment Scheme (Pillar 1)
- 'Greening' payment (Pillar 1)
- Payments for Areas with Natural Constraints (Pillar 1 and Pillar 2)
- Voluntary coupled support (Pillar 1).
- Or, as an alternative to all Direct Payments under Pillar 1, Small Farmers Scheme (Pillar 1)

CAP support for building the capacity of the Natura 2000 farm

Long-term economic and environmental viability of Natura 2000 farming systems depends on building the administrative and environmental capacity of the farmer and the economic capacity of the farm. Public support for capacity building comes from both Pillars of the CAP, but it is essential that this support is tailored to the specific needs of Natura 2000 farmers and farming systems in meeting the environmental objectives. The range of capacity building support includes:

- farm advisory services (Pillars 1 and 2)
- knowledge transfer and information and raising environmental awareness among Natura 2000 land farmers (Pillar 2)
- Investment in physical assets (Pillar 2)
- farm and business development (Pillar 2)

- income support and other payments for young farmers (Pillar 1 and Pillar 2)

The provision of advice, support and training for farmers is crucial for the survival of Natura 2000 farming systems and the successful management of key habitats and species. 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, 2010a). The proposed scope and requirements for the FAS from 2014 offers Member States an opportunity to provide very specific advisory services tailored to the environmental and economic needs of Natura 2000 farmers.

CAP and other support for adding value to the produce of Natura 2000 farms

Many farmers on Natura 2000 and HNV grasslands face challenges selling their products, because they are often small producers 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. The range of support for farmers seeking to add value to their produce includes:

- Setting up producer groups (Pillar 2)
- Quality schemes for agricultural products (Pillar 2)
- Labeling and Protected Designation of Origin

CAP support for the management of Natura 2000 farmland habitats and species

The management of Natura 2000 farmland addressing the particular needs of key habitats and species can be carried out using a range of support from Pillar 2 that includes:

- Preparing and updating Natura 2000 management plans
- Agri-environment-climate payments
- Non-productive investments linked to agri-environment and Natura 2000
- Natura 2000 compensation payments
- Animal welfare payments
- Prevention of damage to forests from forest fires and restoring agricultural production potential

Agri-environment measures are an especially important measure for Natura 2000. Under their 2007-2013 Rural Development Programmes, several Member States have already successfully developed agri-environment schemes specifically tailored to the management of Natura 2000 sites or High Nature Value (HNV) farmland with Natura 2000 habitats and species. The new Pillar 2 should enable Member States and their regions develop further similar agri-environment-climate schemes that are best suited to their own Natura 2000 farmland areas.

CAP payments for co-operation projects and local partnerships

Local partnerships play a crucial role in implementing Natura 2000 conservation management on the ground. 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 the Leader approach, producer groups, and co-operation projects. This range of support from Pillar 2 includes:

- Co-operation projects 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.
- Local partnerships – Leader approach.

Other EU funds for Natura 2000

LIFE is the main EU funding instrument dedicated to the promotion of the environment within the EU. Although its budget is small compared to other EU financing instruments, 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). 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).

The new LIFE Integrated Projects, included in the LIFE fund regulation for 2014-2020[4], 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). Integrated projects should also contribute to mobilise other funding sources to achieve conservation objectives and implement the measures required in Natura 2000 areas.

The European Structural Funds can provide significant funding for Natura 2000 restoration, conservation, management and monitoring actions (European Commission, 2011). The funding can also be used to support eco-tourism, awareness-raising and communication, training and education activities in Natura 2000 areas. The **European Regional Development Fund (ERDF)** allows for allocation of funds to biodiversity, particularly under the objective of preserving and protecting the environment and promoting resource efficiency, including through natural heritage, Natura 2000 and green infrastructure[5]. The **European Social Fund (ESF)** can support capacity building aimed at the creation of new job opportunities related to Natura 2000 and small businesses.

The funds also allow for allocation of funding to transnational, cross-border and interregional cooperation which 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, and wetlands.

[4] Regulation (EC) No 1293/2013 of the European Parliament and of the Council of 11 December 2013 on the establishment of a Programme for the Environment and Climate Action (LIFE) and repealing Regulation (EC) No 614/2007. OJ L 347/185-208

[5] Article 5 of Regulation (EU) No 1301/2013 of the European Parliament and of the Council of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006. Official Journal of the European Union L347/289-302

Market-based instruments and innovative instruments

A range of other potential instruments 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 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.

Payments for Ecosystem Services schemes can also provide an incentive for the conservation and restoration of farmland 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. For example, the Sustainable Catchment Management Programme (SCaMP)[6], 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 this case study in Annex E for further details).

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. EU Member States must now account for emissions/removals from land use, land use change and forestry (LULUCF) in their national carbon budgets, a possible incentive to strengthen the protection of carbon-rich habitats. Fens and heaths on intact peat soils could benefit from funding from carbon offsetting.

Design and implementation of measures to support Natura 2000 farmland management

This document aims to guide in the process of planning, funding and implementing support for farming systems and communities on which the conservation of key Natura 2000 species and habitats depends. The focus is on the key source of funding Pillars 1 and 2 of the CAP with recommendations for each stage of the process. The main steps and relevant recommendations for the management of farmland in Natura 2000 are summarised below.

► **Strategic planning** is crucial to establish conservation priorities and funding needs for Natura 2000 farmland before the start of the 2014-20 programming period. This requires setting clear strategic objectives and priorities for conservation of key habitats and species that depend on Natura 2000 farmland. The prioritized action framework (PAF) should be used as the basis for integrating Natura 2000 financing priorities into EAFRD and other funding programmes. Then, it will be necessary to take timely action to ensure that Natura 2000 objectives and funding needs for 2014-20 from EAFRD and the structural funds are

[6] http://www.unitedutilities.com/scamp.aspx

embedded in the legally binding Partnership Agreement between the Member State and the European Commission. It is essential to ensure cooperation between nature and agriculture authorities and relevant stakeholders in strategic planning for Natura 2000.

► **Identifying Natura 2000 farmland and farming systems, and engaging with the farmers** are important steps in the process. This requires an assessment of the current situation of Natura 2000 farmland, the economic viability of the Natura 2000 farming systems and the key pressures and drivers of change in land management or land use. It is important to engage the farmers and local communities in this information gathering process and develop a partnership approach that involves them fully in the process of designing, delivering and monitoring support measures for their farming systems and the rural economy.

► **Ensuring eligibility for CAP support and setting the reference level,** through joint working and close co-operation between the environmental and agricultural authorities. It is crucial to ensure that the Natura 2000 farmland identified is classed as part of the agricultural area and if it meets the eligibility conditions is recorded in the Land Parcel Information System and Integrated Administration and Contral System.

Using the flexibility available to agricultural managing authorities in the CAP regulations, it is necessary to ensure that Natura 2000 farmers using this land are eligible for both Pillar 1 and Pillar 2 CAP support. Within the boundaries set by the legal framework, agricultural area/activity eligibility rules may be defined in order to fit the characteristics of HNV and/or Natura 2000 farmland. It is also important to ensure there is a clear distinction, readily understood by farmers, between a) legal obligations placed on farmers by national or regional legislation linked to Natura 2000 implementation, which should constitute the Statutory Management Requirements (SMR) of cross-compliance related to both the Birds and Habitats Directives; and b) other national or regional legislation.

► **Designing and targeting coherent packages of CAP support for Natura 2000 farms** requires adopting an inclusive partnership approach, fully involving the target farmers and making use of their expert knowledge of farm and habitat management. Coherent, integrated packages of support from both Pillars of the CAP can be designed to address the specific needs of Natura 2000 farming systems and the key habitats and species that depend on agricultural management. Income support payments of several types are available from Pillar 1, and the new structure of the EAFRD makes it very much easier to design coherent packages of RDP support in the 2014-20 programming period.

Extensive farming systems that provide Natura 2000 habitats need to be economically and socially viable, and this depends on farms receiving an adequate and reliable baseline of CAP income support payments and support for capacity building, as well as payments that can address the specific management needs of certain habitat and species.

The design process should take a holistic view of the needs of these farms to build up a coherent package of support which aims first to secure the farming system and its economic viability, then to provide incentives for the very detailed habitat and species management. The range of potential measures to meet these needs is illustrated in the table below, and each of these measures is described in detail in this guide, which also provides relevant practical examples from different EU countries.

The choice of measures is quite wide and will depend on the strategic objectives, the characteristics of the Natura 2000 farming systems, the threats they face and the opportunities available within the rural economy.

Cost-effective use of available funding shall be made by designing and targeting support as closely as possible to farm and habitat requirements, at the appropriate spatial scale. It is essential to ensure that small farmers are able to access easily the appropriate support from both Pillars of the CAP. Opportunities to use group and co-operative approaches must be considered, especially where multiple small farms are involved, and to encourage 'bottom up' delivery, such as the Leader approach.

It is also important to ensure that payment rates for Areas with Natural Constraints (ANC), Natura 2000 and agri-environment-climate measures reflect the full cost of management, especially where there is little or no income to forgo, and use the option for adding transaction costs to these calculations, where available.

The thematic RDP sub-programme options for mountain farms and small farms could be used to devise specific Natura 2000 options, with higher rates of support.

CAP support measures for Natura 2000 farming systems and management (measures shown in bold are compulsory for Member States)

Objective	**Pillar 1**	**Pillar2**
Ensure that farming continues	– **Basic Payment Scheme, Single Area Payment Scheme** – 'Greening' payment – Payments for Areas with Natural Constraints (ANC) – Voluntary coupled support – Or, as an alternative to all Direct Payments under Pillar 1, Small Farmers Scheme	– ANC compensation payment
Support extensive farming systems	– ANC payment – Coupled payments	– ANC compensation payment – Organic farming
Build capacity and add value	– **Young Farmers Scheme**	– Advisory services – Knowledge transfer and information – Investment in physical assets – Farm and business development – Setting up producer groups – Quality schemes for agricultural products – Basic services (drawing up Natura 2000/HNV management plans)
Specific conservation management of Natura 2000 habitats and species		– Agri-environment-climate – Non-productive investments – Natura 2000 payments – Animal welfare payments – Prevention of forest fires and restoring agricultural potential

► **Securing financial, technical, advisory and administrative resources for implementation**. Sufficient financial and other resources should be available for long-term support, including trained advisory and paying agency staff with the technical expertise required for Natura 2000 land management.

Funding under RDPs 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-term measures (such as habitat restoration). It is essential to secure funding not just for payments to farmers but also to cover all the delivery and support costs, for example advisory services, training and skills acquisition, preparation of Natura 2000 and HNV management plans, and group facilitation.

Advice and information should be delivered by sources trusted by the farmer and should always integrate advice on conservation with advice on how this can be accommodated within the farming system. Funding should also be made available for monitoring the impacts of management activities at farm level.

► **Monitoring, evaluation and review** are essential 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. A suite of indicators specific to the CAP as a whole, and rural development policy in particular are established through the Common Monitoring and Evaluation Framework (CMEF). These include common context indicators for Natura 2000 areas, conservation status of agricultural habitats and HNV farming, to be applied in all Member States. Managing authorities may also put in place additional indicators relevant to their national/regional situation.

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 also be applied at farm level using suitable indicators that can be easily verified. Involving farmers in regular monitoring of the results achieved through their implementation of the required measures has proved to be very effective and a ways to improve their participation in the implementation of the schemes. Wider public communication is also very important to create a positive image of the target species and habitats, and recognise those who make efforts to protect them.

Where Natura 2000 management schemes are being introduced for the first time, small-scale pilot testing and evaluation can improve the efficiency, acceptance and delivery of the schemes.

Final remarks

Farmers who contribute to suitable management of key habitats and species dependent on agricultural practice often farm under difficult circumstances and are extremely vulnerable to economic pressures, which can lead them to abandon their traditional farming systems.

Funding opportunities exist to support the whole farm economic viability and to promote the implementation of the measures needed for the conservation of agricultural habitats and species of Community interest and for the management of the Natura 2000 sites.

Member States can make best use of these opportunities to build integrated packages of support for Natura 2000 farmers that ensure the economic viability of the extensive farming

system on which the beneficial management depends, and also address the specific management practices needed for the conservation of the key habitats and species.

The revised CAP for the period 2014-2020 provides a new opportunity for Member States to develop coherent packages of support specifically for Natura 2000 farmers. These should combine measures from both Pillars of the CAP with the aim of supporting the continuation of the extensive farming systems, helping farmers to add value to the produce and rewarding them for the management of Natura 2000 sites, habitats and species.

PURPOSE OF THIS GUIDE

- **What is this guidance for?**

This guidance document has been prepared to assist Member State administrations and key stakeholder groups, who are responsible for agriculture and nature conservation, in developing and promoting farming systems and practices within Natura 2000 areas that will help maintain and improve the conservation status of rare and threatened habitats and species of EU importance.

The guidelines have been prepared through an active dialogue with relevant stakeholders (agricultural and environmental authorities, farmers' organisations, environmental NGOs) in order to find ways to encourage a more integrated approach to the management of farmland in Natura 2000 areas, and to strengthen in particular the partnership approach.

The guide provides an overview of the main issues to consider as regards the relationship between farming and Natura 2000 and offers a range of practical ideas, examples and recommendations on managing farmland in Natura 2000 sites, based on good practice experiences from across the EU.

Different approaches are presented as regards the design, coordination and implementation of appropriate measures for maintaining habitats and species of EU interest through various types of farming systems and agricultural practices. Particular attention is given in this respect to the integration of Natura 2000 management measures into the Rural Development Programmes.

The document is intended to provide a useful source of advice and ideas for Member States and stakeholders. As such it reflects only the views of the European Commission and is not of a legally binding nature. The Habitats and Birds Directives are enshrined in the principle of subsidiarity and it is for Member States to determine the measures to be taken to manage their Natura 2000 sites in accordance with Article 6.1 and 6.2 of the Habitats Directive.

The present guidance is therefore not prescriptive in its intent, but rather aims to offer a useful source of information and advice to help Member States implement their obligations under the Habitats and Birds Directives.

- **Who is this guidance for?**

This guidance is primarily addressed to administrations dealing with the Common Agricultural Policy (CAP) (especially those designing Rural Development Programmes [RDPs] and supporting their implementation), and those dealing with the implementation of the Habitats and Birds Directives.

Conservation authorities and Natura 2000 managers will find relevant information and guidance on the management of key farmland habitats and species and on the use of the main instruments available to support their conservation, inter alia, under the RDP.

Agriculture authorities and RDP managers will find a clear overview of the obligations arising from EU Habitats and Birds Directives and their relevance and importance for the agricultural sector. They will also find a wealth of practical advice and ideas on how to develop and promote appropriate farming measures and programmes that contribute to the conservation of Natura 2000 sites under a range of social, economic and physical or geographical conditions.

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

- **What can you find in this document?**

Chapter 1 sets the overall policy context and provides a brief introduction to the Natura 2000 network and the EU's political commitments to stem the loss of biodiversity in Europe.

Chapter 2 explains the importance of farming for habitats and species of EU importance, identifies which Natura 2000 habitats and species are linked to specific farming systems and practices, and how agricultural management influences their conservation. It also gives an overview of the main pressures and threats to these habitats and species.

Chapter 3 provides an overview of the management requirements for Natura 2000 sites in the context of farmland. It explains key terms such as setting conservation objectives, establishing conservation measures , and achieving a 'Favourable Conservation Status' (FCS) It also outlines the different funding options available for Natura 2000 sites in farmland.

Chapter 4 describes the main farming systems and practices that are needed to restore and maintain Natura 2000 farmland habitats and species in Favourable Conservation Status.

Chapter 5 describes the range of policy instruments and funds that can be used to maintain and re-introduce appropriate farming systems and practices within Natura 2000. This chapter also reviews the potential for market-based approaches to support Natura 2000 management.

Chapter 6 provides a step by step guide to designing different types of packages of CAP measures to support the management of Natura 2000 in farmland. Real life examples from across the EU countries are included to illustrate how the recommendations can and have been put in practice.

Annexes:

Annex A describes the key habitat types of Community interest that are dependent on agriculture and the degree of dependency for each, as well as their distribution, total extent, proportion of habitat within Natura 2000, and their current conservation status.

Annex B lists the key species of Community interest that are associated with farmland habitats. It identifies their habitat use within an agricultural context, their priority status, and their current conservation status.

Annex C shows the area of farmland habitats of Community importance in those Member States that contain 10% or more of the total area of a habitat within any given biogeographical region. The aim is to highlight to Member States the habitats for which they have a particular responsibility.

Annex D shows examples of recommendations for the management of each key Annex I habitat type associated with agriculture. Recommendations are *not* prescriptive and management should be adapted to national and local conditions and objectives, using the best available local knowledge.

Annex E presents a series of 27 case studies on different approaches that have been used to manage farmland in a way that promotes the conservation of habitats and species of Community interest in different Member States.

1. INTRODUCTION

1.1 Farming across the ages

Europe's diverse farming practices have had a profound influence on our countryside, creating an intricate patchwork of semi-natural habitats that are so characteristic of today's landscape. They are part of what makes Europe's countryside special, both culturally and from a biodiversity perspective. Today, around half the EU's territory is agricultural land, and farming remains the principal economic activity in most rural areas. It keeps the countryside alive and plays a vital role in supporting the local economy.

Agriculture has of course undergone major changes over the years. From the 1950s on, farmers were encouraged to intensify and modernize their farming practices wherever possible in order to increase their yields and improve efficiency. Monocultures were introduced, fields enlarged, livestock farms expanded and pesticides and fertilizers applied. As a result, a significant part of extensive farmland has disappeared or been converted in the last 60 years.

However, not all of the agricultural land could undergo this process of intensification and mechanization. In many parts of the EU, the local terrain does not allow for such intensive practices. The slopes may be too steep, the soil too poor, the area too remote etc. Also, the local farm structure and land distribution patterns make it difficult to introduce such major agricultural changes.

As a result, today, significant parts of the EU continue to be farmed in a more extensive way that is well adapted to the local conditions. This is usually in the hands of local small-scale farmers rather than large agri-businesses. But they are far from being in the minority. Small scale farmers and extensive farming businesses still represent a significant proportion of the 14 million farmers in the EU.

Although not as productive as the modern large scale farms, these farming systems are nevertheless a vital part of the socio-economic fabric of Europe's rural areas and, as such, have an essential role to play socially, economically and environmentally within the EU. They represent a substantial source of local employment and income, preventing rural depopulation and helping to keep rural communities alive. They are a vital source of food and produce for many remote rural areas. And they play a major role in maintaining Europe's rich and diverse biodiversity.

However, despite their socio-economic importance, the viability of extensively managed farming businesses has become increasingly precarious over the years. In many parts of the EU, farmers have been forced to abandon their land and go in search of alternative sources of income elsewhere, with devastating social and economic consequences for the rural areas concerned. Over recent decades substantial areas of the EU have been affected by agricultural abandonment. There are also reasonable expectations that farmland

abandonment in Europe, particularly of extensively grazed areas, will continue over the next decades.

Land abandonment is mitigated to some extent by the Common Agricultural Policy (CAP), which supports environmentally beneficial farming practices and rural communities in marginal/less productive farming areas, and also requires landowners to maintain agricultural land in 'good agricultural and environmental condition' in order to receive CAP payments.

1.2 Reforms of the Common Agricultural Policy

It is essential that society gives due recognition to farmers who manage their land in a way that is compatible with, and supportive of, the natural environment. As illustrated above, they not only play a vital role in maintaining the socio-economic fabric and environmental quality of Europe's rural areas, but also provide a wide range of environmental public goods and services to society.

This important role should be properly reflected in, and supported by, appropriate policy commitments at all administrative levels. The Common Agricultural Policy (CAP) also has a central part to play in this respect. Over the years, successive reforms have increasingly acknowledged the importance of providing support and incentives to this important sector of the farming community – especially through the strengthening of Rural Development Measures under Pillar 2. This aims, amongst others, to help farmers who are living and working under difficult agricultural conditions to remain economically viable and to continue to produce environmentally sustainable products that are in keeping with the natural environment.

Moreover, the decoupling of farm subsidies from production and the introduction of cross compliance rules under the CAP have provided an opportunity for farmers to respond more easily to market conditions, while observing baseline environmental standards.

This is not to say that the general trend towards intensification and increased specialisation and mechanisation will stop (especially in the newer Member States, where agricultural structures and systems continue to change in response to market forces) but in today's society there is also a strong political demand, especially when using public funds, to place greater emphasis on the fact that farmers are not just as producers of food but also as custodians of our countryside, providing a wide range of ecosystem goods and services for the benefit of society as a whole and safeguarding our natural environment.

In this respect, the central role of farmers who manage their land in a way that is environmentally sound and well adapted to local conditions must not be overlooked in the drive towards ever increasing farm efficiency and productivity.

1.3 EU and Member States' policy commitments on biodiversity

Farming has been a major contributor to biodiversity, thanks to centuries of diverse farming traditions which has resulted in the development of an intricate patchwork of semi-natural habitats across the landscape. This has, in turn, attracted a wide range of species of fauna

and flora. Some are well known like the Corncrake (*Crex crex*) and White Stork (*Ciconia ciconia*), but a myriad of other lesser known species, such as Dusky Blue Butterfly (*Maculinea nausithous*) and many orchid species have also made their home in these semi-natural habitats.

These species are now entirely dependent on locally tailored extensive farming systems and practices for their continued survival. Yet, in the last 50 years, through the combined effects of farm intensification and land abandonment, farmland biodiversity has undergone a dramatic decline. Today, only around 15-25% of Europe's once extensive farmland areas of high nature value remain. Farmland bird populations have also decreased by around 50% since the 1980s but have leveled off since, whereas farmland butterfly populations have decreased by 70% since 1990 and as yet show no sign of recovery (Van Swaay et al 2010).

Recognising this alarming decline in Europe's biodiversity, the EU Member States have adopted two key pieces of EU legislation – the Habitats[7] and Birds[8] Directives – to conserve Europe's most valuable species and habitats across their entire natural range within the EU. The overall objective of the Birds Directive is to maintain and restore the populations of all naturally occurring wild bird species present in the EU at a level that will ensure their long-term survival. The Habitats Directive has similar objectives to the Birds Directive but targets a number of species other than birds as well as certain habitat types in their own right.

The two directives do not cover every species of plant and animal in Europe (i.e. not all of the EU's biodiversity). Instead, they focus on a sub-set of around 2000 (out of ca 100,000 or more species present in Europe) - which are so rare or endangered that they are in urgent need of protection to prevent their extinction. These are often referred to as species of Community interest or EU importance.

The two directives require that Member States do more than simply prevent the further deterioration of these species and habitat types of Community interest, they must also introduce measures to ensure that they reach a favourable conservation status throughout their natural range within the EU. The fact that a habitat or species is not threatened (i.e. not faced by any direct extinction risk) does not necessarily mean that it is in favourable conservation status.

These two EU nature Directives are the cornerstones of the EU's biodiversity policy. In 2012, the EU set itself the target of *halting the loss of biodiversity and the degradation of ecosystem services in the EU* ***by 2020****, and restoring them so far as feasible, whilst stepping up the EU's contribution to averting global biodiversity loss*.

This reflects the strong political commitment that European Heads of State and Governments' have made and puts biodiversity high on EU's political agenda. The EU's re-enforced Biodiversity Strategy[9], adopted in 2012, identifies six major target areas where

[7] Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. Consolidated version 1. 1. 2007. http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

[8] Council Directive 2009/147/EC on the conservation of wild birds, codified version of Directive 79/409/EEC. Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:EN:PDF

[9] Full text of the EU Biodiversity Stratregy available at: http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/1_EN_ACT_part1_v7[1].pdf

action is required to address the main pressures on nature and ecosystem services in the EU. One of the six targets is to increase the contribution of agriculture and forestry to biodiversity.

The EU biodiversity strategy to 2020

The EU biodiversity strategy to 2020 aims to halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status. The strategy seeks to improve integration in key sectors, specifically through targets and action to enhance the positive contribution of the agriculture, forest and fisheries sectors to biodiversity conservation and sustainable use. With respect to agriculture, existing instruments under the CAP will contribute to this target. The strategy also aims to improve connectivity amongst Natura 2000 sites and in the wider environment through the development of green infrastructure

Target 1
To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments: (i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50% more species assessments under the Birds Directive show a secure or improved status.

Target 2
By 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems.

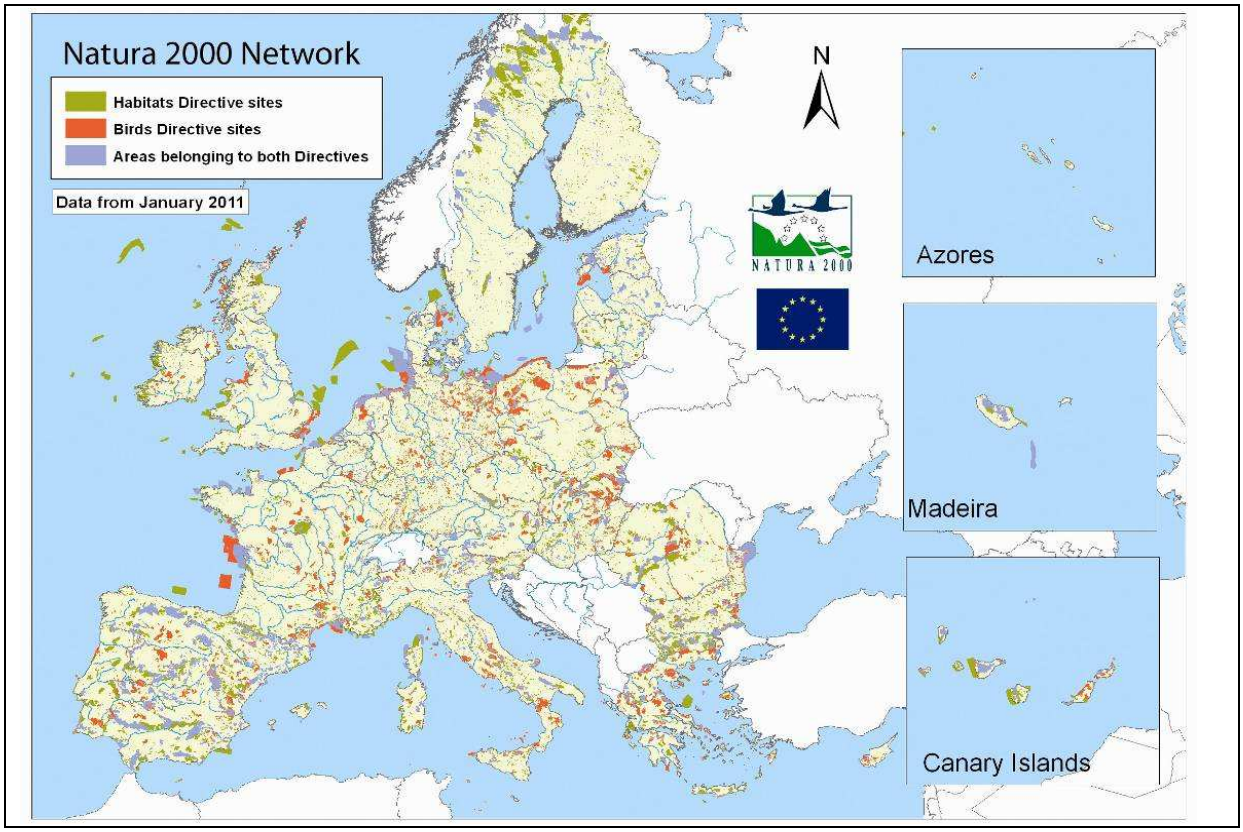
Target 3
A) Agriculture: By 2020, maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by agriculture and in the provision of ecosystem services as compared to the EU2010 Baseline, thus contributing to enhance sustainable management.

The European Commission has also emphasised that the effective management and restoration of Natura 2000 protected areas is central to attainment of the EU 2020 biodiversity target.

1.4 The Natura 2000 Network

A central element of the Nature Directives is the creation of an EU-wide Natura 2000 Network. It is comprised of Sites of Community Importance (SCIs) and Special Conservation Areas (SAC) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive (referred to collectively as Natura 2000 sites). How these sites are to be managed and protected is explained further in chapter 3.

Over 26,000 sites have been included in the Natura 2000 Network so far. Together, they cover around 18% of the land area in the EU as well as significant marine areas. But Natura 2000 is not a system of strict nature reserves, it adopts a different approach, one that fully recognises and man is an integral part of nature and the two work best in partnership with one another.



1.5 A partnership between farmers and society

The importance of farmers for the Natura 2000 network is reflected in the fact that farmland makes up around 40% of the total area included in Natura 2000. Because a high level of biodiversity usually coincides with low agricultural productivity, most of the farmland in Natura 2000 is located in the more marginal farming areas. Typical examples include alpine meadows and pastures, steppic plains, open heathland and wet grasslands.

In some of these areas, existing farming systems and practices are already likely to be compatible with the conservation of the species and habitats for which the site has been designated under Natura 2000, and the emphasis will be on finding ways to continue to support these farming practices and give due recognition to the farmers involved. In others, traditional farming practices may already have been abandoned or converted to another form of farming that is less compatible to nature, in which case it will be necessary to find ways to re-introduce compatible farming systems or adjust existing practices so that they are able to contribute once again to the conservation of the habitats and species of Community interest for which the site has been designated.

This calls for a strong partnership approach between the farmers concerned, the public authorities responsible for both agricultural and nature policies and civil society at large. The present guide aims to illustrate how this partnership can be made to work effectively for the benefit of all. It provides an overview of the main issues to consider as regards the relationship between farming and Natura 2000 and offers a range of practical ideas, examples and recommendations on managing farmland in Natura 2000 sites, based on good practice experiences from across the EU.

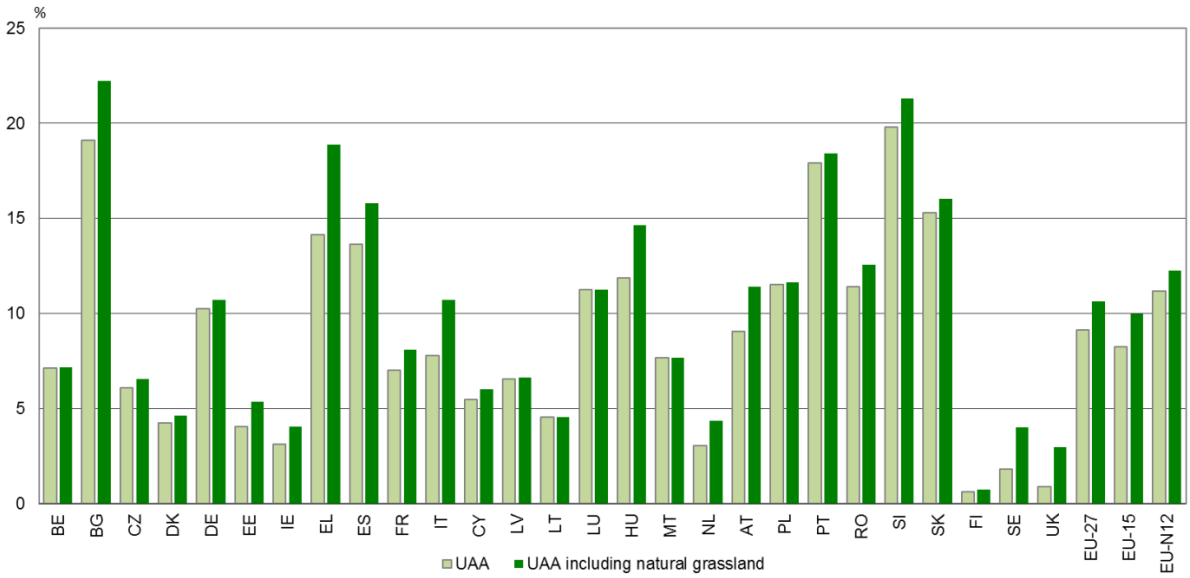
2. FARMLAND IN NATURA 2000

What can you find in this chapter?
This chapter provides an overview of the role that different farming systems and practices play in supporting for the conservation of Natura 2000 habitats and species. It outlines the kind of farmland that is included in the Natura 2000 Network and identifies those habitats and species protected under the two EU nature Directives which are specifically linked to agricultural practices. It looks at their main pressures and threats within a farming context and at how various aspects of agricultural management can influence their conservation.

2.1 What kind of farmland is included in Natura 2000?

Agro-ecosystems[10] represent on average 38% of the total surface area of the Natura 2000 network in the EU (EEA, 2010), and Natura 2000 sites contain 10.6% (or 22.2 million ha) of the total agricultural land of the EU-27 (see Figure 2.1).

Figure 2.1 Proportion of agricultural land inside Natura 2000
Note: the percentages of UAA under Natura 2000 are estimated using Corine Land Cover classes.
Source: European Commission, 2013a.



[10] In this section, "agro-ecosystems" comprise the following CORINE Land Cover (CLC) classes:
- Regularly cultivated land, which 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).

It should be noted that the term 'agricultural land' in this context is much broader than the area classified as Utilised Agricultural Area in other contexts, such as in Community Farm Structure Surveys and Crops statistics[11].

Most of the agricultural land in Natura 2000 has been managed by extensive systems of farming, and its continued existence is therefore heavily dependent on the continuation of such farming systems (see Box 2.1). The emphasis is very much on promoting positive conservation measures within farming systems that are both ecologically and economically sustainable. Low intensity farming systems that are included in Natura 2000 have usually developed over time, with farm structures and farming practices closely adapted to local conditions. Broadly, they include:

- livestock systems where the forage areas are mainly semi-natural vegetation, including pastures, heath and scrub;
- low intensity arable systems (for example on poor soils, dry, saline or waterlogged areas, or in remote locations), often in rotation with semi-natural fallow vegetation;
- low intensity permanent crops, such as old traditionally managed orchards and olive groves; and
- mixed farming systems with arable and/or permanent crops with livestock. Such farming systems also include farmland with a mosaic of low intensity agriculture and valuable landscape features, which can support a high species biodiversity.

Low intensity **livestock systems** are often found in Natura 2000 sites because they maintain large areas of semi-natural pastures and meadows, heath and scrub, which host many plant and animal species of Community interest, and shape the landscape of our uplands, mountains and other areas. Species such as the Tatra Alpine Marmot (*Marmota marmot latirostris*) and rare butterfly species (eg *Colias myrmidone* and *Erebia calcaria*) are found in mountain pastures and meadows that are extensively grazed.

Low intensity **arable systems** such as dry cereal steppe lands are often designated as Natura 2000 sites because they support rare and highly threatened arable weed species, mammals such as the Romanian Hamster (*Mesocricetus newtoni*) and European Souslik (*Spermophilus citellus*), and large populations of some globally threatened birds, including Great Bustard (*Otis tarda*) and Lesser Kestrel (*Falco naumanni*). The fallow or set-aside component of these arable systems is an essential part of their nature value, as well as the sparse and heterogeneous vegetation structure of both crops and fallow.

[11] In Community Farm Structure Surveys (FSS), utilised agricultural area (UAA) is the total area taken up by arable land, permanent grassland, permanent crops and kitchen gardens used by the holding, regardless of the type of tenure or of whether it is used as a part of common land. The UAA does not include unused agricultural land, woodland and land occupied by buildings, farmyards, tracks, ponds, etc. UAA is also defined within the context of Crops statistics (Council Regulation (EEC) No 837/90 of 26 March 1990 and Council Regulation (EEC) No 959/93 of 5 April 1993) respectively as 1) Area under cereal cultivation for each group of cereals and for any cereal (as specified in the annexes), production of which exceeds 50 000 tonnes per year and 2)) Areas of arable land, permanent grassland, permanent crops and other parts of the UAA apart from arable land (land under crops other than cereals). Permanent grassland shall also include the parts of the UAA outside agricultural holdings. There are major differences at present between the UAA based on the Farm Structure Survey and on the Crop statistics due to the different definitions given in the surveys.

Low intensity **silvo-pastoral systems** that combine arable cropping and livestock grazing with trees, such as dehesa and montado, are farming systems with unique characteristics that support many species of Community interest, such as the Iberian Emerald Lizard (*Lacerta schreiberi)* and the Spanish Imperial Eagle (*Aquila adalberti*).

Low intensity **permanent crops**, including fruit and nut orchards, olive groves, and vineyards, are often found in Natura 2000 areas because their structural richness, including mosaics of terraces, hedges, grassland and other semi-natural vegetation features, provides suitable habitat for many species that were originally associated with open woodland and/or rocky habitats. Traditional orchards are suitable for wide-ranging species that require a complex of habitats as the Northern Crested Newt (*Triturus cristatus*), and for saproxylic insects dependent on decaying wood such as the Stag Beetle (*Lucanus cervus*). Many bird species can be found on permanent crops, including the Olive Tree Warbler (*Hippolais olivetorum).* Bats such as Greater Horseshoes (*Rhinolophus hipposideros*) forage over traditional orchards. Low intensity permanent crops also valued for their landscape properties and their cultural and historic associations.

A few Natura 2000 species are also found on **intensively managed agricultural land**. These include some internationally important wintering populations of geese and swans, such Barnacle Goose (*Branta leucopsis*) and Whooper Swan (*Cygnus cygnus*) that graze intensive grassland and cereal crops in winter. The European Hamster (*Cricetus cricetus*), which is listed in Annex IV of the Habitats Directive and therefore requires strict protection under Article 12, occurs on arable land where enough food resources and enough refuges in fodder crops and uncropped vegetation margins are available.

Box 2.1 The relationship between High Nature Value farmland and Natura 2000

The High Nature Value (HNV) farmland concept has been widely adopted across Europe in agricultural policy. High Nature Value farmland comprises those areas in Europe where agriculture is a major (usually dominant) land use and where that agriculture supports or is associated with either a high species and habitat diversity, or the presence of species of European, and/or national, and/or regional conservation concern or both (Beaufoy & Cooper, 2008; Cooper et al, 2007; Oppermann et al, 2012). Within this definition three types of HNV farmland are identified:

- 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.

In practice there is a considerable overlap between HNV farmland areas and farmland in Natura 2000, as the HNV type 3 has been identified using information from the Natura 2000 network, as well as from Important Bird Areas (IBAs), Prime Butterfly Areas (PBAs) and other suitable national biodiversity datasets (see Paracchini et al 2008 for further details).

However, the two concepts are clearly distinct from one another. HNV Farmland is a broad concept covering all of biodiversity and has no legal force. Natura 2000 on the other hand is bound by EU legislation. Farmland areas are only included in Natura 2000 if they are of key importance for one or more of the EU protected species and habitats under the Habitats or Birds Directives (ie not all areas where the species and habitats are present are necessarily included in Natura 2000 – see Chapter 3). Once included in Natura 2000, Member States are under the legal obligation to manage these sites in a way that ensures the conservation of the species and habitat types for which it has been designated.

See Chapter 4 for more details on farming systems and habitat and species management.

2.2 Which habitats and species of Community interest are concerned?

Many of the Natura 2000 habitats and species of Community interest that are protected under the Habitats and Birds Directives are dependent on, or associated with, agricultural practices (see Table 2.1). They are therefore given special focus in this guide and, for ease of reference, are referred to simply as "key farmland habitats" and "key farmland species".

It should be noted that, under the terms of the Habitats Directive, only the most important core sites for these habitat types and species are included in Natura 2000, not all of the areas where they are present. As Table 2.1 illustrates, some habitat types have only 20%-30% of their total area protected by the Natura 2000 network.

2.2.1 Key farmland habitats of Community interest

Annex I of the Habitats Directive lists 58 habitat types (of which 23 are priority habitat types[12]) which are considered to be key farmland habitats because they are dependent on or associated with extensive agricultural practices. They fall into eight broad habitat groups (European Commission, 2013b). These are described briefly below. More detailed information about each habitat type is included in Annex A.

Over a third of these habitats (24) are considered to be fully dependent on appropriate agricultural practices (Halada et al, 2011). These are habitats where the species composition has been subject to selection over many decades or centuries and corresponds both to the site conditions and to type and intensity of human management. Both cessation of this management and significant changes in the management intensity result in (usually irreversible) changes in the habitat structure and species composition.

The other 34 habitats are considered to be partially dependent because management either prolongs the existence of the habitat by blocking succession, or enlarges/maintains an enlarged area of habitat distribution. Some habitats are partially dependent only for some sub-types or over part of their distribution. A few rare primary habitat types in the more extreme climatic conditions should be protected from any agricultural use.

[12] 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.

o *Coastal and halophytic habitats*

Coastal salt meadows and marshes around the Atlantic, North Sea and Boreal coasts have often traditionally been grazed, and would deteriorate with rank vegetation if grazing were abandoned. Inland salt meadows and marshes are also seasonally grazed.

Atlantic salt meadow with Limonium spp. (Photo: Dr J.P. Doody)

o *Coastal sand dunes and inland dunes*

Fixed dunes with grassland and scrub are often dependent on extensive grazing to stop succession and keep an open habitat. Machair is a special coastal sand landscape developed by centuries of low intensity grazing and rotating cultivation. Inland dunes and sandy heaths with grass and scrub need large-scale extensive grazing or mowing and small-scale disturbances to keep up a certain level of disturbance and keep down the scrub.

Calcareous fixed dunes in Sefton Coast (Photo: John Houston)

o *Temperate and boreal heath and scrub*

Dry heaths are semi-natural habitats derived from woodland through a long history of grazing and burning. Historically they were used as permanent pasture within mixed farming systems. They also provided fuel, livestock bedding, winter fodder, thatching and even road building material. Wet heaths are also sometimes extensively grazed but are very sensitive to damage by over-grazing. Alpine heaths have traditionally been seasonally grazed under a transhumance regime, as well as by wild grazing species. Boreal heaths are grazed by reindeer.

North Atlantic wet heaths in New Forest, England (Photo: Steve Humble)

o *Sclerophyllous scrub (matorral)*

Sclerophyllous scrub habitats are found around the Mediterranean. A few patches of natural vegetation occupy sites with extreme conditions, and these should be left alone. But most are secondary habitats formed by the destruction of oak forests and successive centuries of open grazing with sheep and goats and regular burning. For example, Juniper scrub formations on heath or calcareous grassland are widespread in nearly all regions of Europe, and rely on extensive grazing to maintain their characteristic mosaic of scrub and grassland.

Juniper matorral in Central Italy. (Photo: Foreste Casentinesi National Park)

o *Natural and semi-natural grasslands*

European grassland formations form a wide range of types and subtypes, from very dry, sparsely vegetated natural grasslands to alluvial meadows and wet *Molinia* meadows, and from alpine grasslands to dehesas with evergreen oak (*Quercus)* trees to steppe grasslands. Management systems and traditions are correspondingly varied. Hay meadows have the widest distribution.

Species-rich grasslands in Czech Republic (Photo: National Park Krkonoše Administration)

o *Bogs and fens*

Most bogs provide very poor and sparse forage and are sensitive to grazing. Therefore, many are not grazed, and if they are this needs to be at a very carefully controlled. Fens are not generally agriculturally used, but some fen habitat types that are not too wet are used for light grazing or for harvesting livestock litter material.

Alkaline fens with Cottongrass (Photo: Viera Šefferová Stanová)

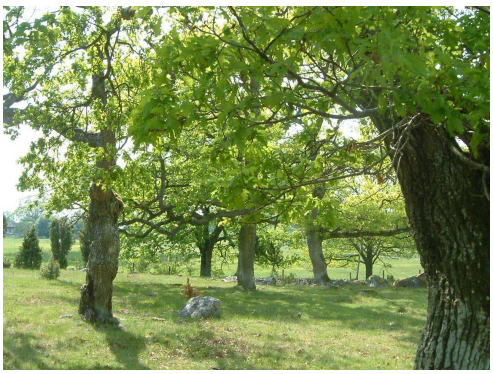
o *Rocky habitats*

Limestone pavements need grazing and/or coppicing to keep them open, and are grazed as part of habitat mosaics with semi-natural grassland and scrub. Rocky habitats can also form part of larger grazed semi-natural habitat mosaics, for example in alpine pastures or nordic alvar grasslands.

Limestone pavement in the Burren (Ireland) (Photo: Sharon L. Parr)

o *Wooded pastures and meadows*

The Fennoscandian wooded pastures and meadows are the remaining fragments of formerly widespread farming systems of grazing mixed with scattered trees and scrub, which were traditionally harvested for livestock forage.



Wooded pasture in Sweden (Photo: Jens Johannesson)

Table 2.1 - Key farmland habitats of Community interest

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** = proportion of habitat that is protected within Natura 2000 sites as listed in Appendix to Coverage of habitats and species by the Natura 2000 network in the Article 17 report (ETC/BD, 2008). **% UFC:** The proportion of habitat area* with unfavourable conservation status was calculated by totalling the sum of each habitat assessment per Member State and biogeographical region that was classified as being in overall unfavourable conservation status, and then dividing this by the total habitat area reported (ETC/BD 2008 Article 17 database). **% XX**: The proportion of habitat area* with unknown conservation status was calculated in the same way. (NB: this assumes that all of the area within an unfavourably assessed habitat is in unfavourable status, whereas in the Article 17 reporting guidelines a certain proportion can still be in favourable status when the overall status is judged to be unfavourable). * Excludes Romania (RO) and Bulgaria (BG). Presence of habitat in Romania and Bulgaria follows ETC/BD Habitat check list[13].

NOTE: Due to the accession of Croatia an additional grassland habitat dependent on mowing has been added: 6540 Sub-Mediterranean grasslands of the *Molinio-Hordeion secalini*

Source: Council Directive 2013/17/EU of 13 May 2013 adapting certain directives in the field of environment, by reason of the accession of the Republic of Croatia

Code	Habitat type	Agri dep	Priority habitat	% N2K	% UFC	% XX
1330	Atlantic salt meadows	1		65%	100%	0%
1340	Inland salt meadows	2	*	51%	100%	0%
1530	Pannonic salt steppes and salt marshes	1	*	55%	100%	0%
1630	Boreal Baltic coastal meadows	2	*	71%	100%	0%
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)	1	*	57%	95%	1%
2140	Decalcified fixed dunes with *Empetrum nigrum*	1	*	58%	93%	0%
2150	Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)	1	*	41%	28%	72%
2190	Humid dune slacks	2		51%	93%	6%
21A0	Machairs	3	*	27%	100%	0%
2250	Coastal dunes with *Juniperus* spp.	2	*	67%	76%	24%
2310	Dry sandy heaths with *Calluna* and *Genista*	1		68%	100%	0%
2320	Dry sandy heaths with *Calluna* and *Empetrum nigrum*	1		43%	99%	1%
2330	Inland dunes with open *Corynephorus* and *Agrostis* grasslands	1		43%	98%	2%
2340	Pannonic inland dunes	3	*	29%	100%	0%
4010	Northern Atlantic wet heaths with *Erica tetralix*	3		36%	100%	0%
4020	Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*	3	*	41%	16%	84%
4030	European dry heaths	3		37%	52%	47%
4040	Dry Atlantic coastal heaths with *Erica vagans*	3	*	33%	63%	0%
4060	Alpine and Boreal heaths	1		73%	22%	4%
4090	Endemic oro-Mediterranean heaths with gorse	2		62%	2%	91%
5120	Mountain *Cytisus purgans* formations	1		73%	0%	92%
5130	*Juniperus communis* formations on heaths or calcareous grasslands	2		30%	47%	7%
5210	Arborescent matorral with *Juniperus* spp.	1		65%	0%	86%
5330	Thermo-Mediterranean and pre-desert scrub	1		69%	15%	77%

[13] ETC/BD (2012) Habitats check list. http://bd.eionet.europa.eu/article17/reference_portal

5420	*Sarcopoterium spinosum* phryganas	2		85%	0%	6%
5430	Endemic phryganas of the *Euphorbio-Verbascion*	2		79%	0%	7%
6110	Rupicolous calcareous or basophilic grasslands of the *Alysso-Sedion albi*	1	*	57%	12%	78%
6120	Xeric sand calcareous grasslands	2	*	18%	99%	1%
6140	Siliceous Pyrenean *Festuca eskia* grasslands	2		90%	64%	11
6150	Siliceous alpine and boreal grasslands	2		58%	10%	0%
6160	Oro-Iberian *Festuca indigesta* grasslands	2		68%	0%	100%
6170	Alpine and subalpine calcareous grasslands	2		64%	26%	31%
6180	Macaronesian mesophile grasslands	2		86%	100%	0%
6190	Rupicolous pannonic grasslands (*Stipo-Festucetalia pallentis*)	3		47%	63%	0%
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)	3		49%	49%	23%
6220	Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*	3	*	60%	3%	82%
6230	Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and sub-mountain areas, in continental Europe)	3	*	37%	80%	2%
6240	Sub-Pannonic steppic grassland	2	*	67%	100%	0%
6250	Pannonic loess steppic grasslands	3	*	39%	99%	1%
6260	Pannonic sand steppes	3	*	33%	100%	0%
6270	Fennoscandian lowland species-rich dry to mesic grasslands	3	*	22%	100%	0%
6280	Nordic alvar and precambrian calcareous flatrocks	3	*	54%	53%	0%
62A0	Eastern sub-Mediterranean dry grasslands (*Scorzoneratalia villosae*)	3		95%	91%	0%
6310	Dehesas with evergreen *Quercus* spp.	3		65%	0%	98%
6410	*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	3		35%	94%	4%
6420	Mediterranean tall humid herb grasslands of the *Molinio-Holoschoenion*	2		65%	3%	95%
6430	Hydrophilous tall herb fringe communities of plain and of the montane to alpine levels	1		44%	77%	23%
6440	Alluvial meadows of river valleys of the *Cnidion dubii*	3		52%	100%	0%
6450	Northern boreal alluvial meadows	3		18%	100%	0%
6510	Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)	3		46%	89%	6%
6520	Mountain hay meadows	3		51%	99%	1%
6530	Fennoscandian wooded meadows	3	*	54%	100%	0%
6540	Sub-Mediterranean grasslands of the *Molinio-Hordeion secalini*	3		n/a	n/a	n/a
7210	Calcareous fens with *Cladium mariscus* and species of the *Caricon davallianae*	1	*	26%	71%	2%
7230	Alkaline fens	2		43%	97%	0%
8230	Siliceous rock with pioneer vegetation of the *Sedo-Scleranthion* or of the *Sedo albi-Veronicion dillenii*	1		34%	9%	82%
8240	Limestone pavements	2	*	47%	27%	37%
9070	Fennoscandian wooded pastures	3		19%	100%	0%

2.2.2 Key farmland species of Community interest

Annex II of the Habitats Directive lists 197 species or subspecies that are associated with agro-ecosystems or grassland ecosystems. These key farmland species[14] include 115 plants, 48 invertebrates, 4 amphibians, 89 reptiles and 21 mammals. From Annex I of the Birds Directive, 62 of the 195 birds listed are considered to be key farmland species[15]. All 259 species are listed in Annex B of these guidelines with their habitat preferences.

A large proportion of these key farmland species are dependent on the continuation of extensive traditional farming practices for their survival in the EU. The majority of the species (215 spp.) are principally associated with grassland, 11 species with extensive agricultural crop land, and 30 species require both types of agricultural system.

- ***Plants***

Some of the listed plant species are endemic to small areas where they are best protected by nature reserves, but other species were until recently more widespread and have declined because of the loss of their habitats and the traditional extensive farming practices that maintained them. The list includes arable weeds that used to be quite abundant and widespread across Europe, but now remain only in small fragmented populations in areas where extensive arable cereal cultivation still occurs.

Iris humilis in sand grasslands in Hungary (Photo: Wikimedia Commons)

- ***Invertebrates***

The list of invertebrate species associated with grasslands includes 17 butterfly and 8 moth species. This includes butterflies that until recently were widespread in hay meadows, wet meadows (*Molinia* and fen meadows) or calcareous pastures, but have suffered drastic reductions in populations due to the loss of these extensively farmed grasslands. It also includes grasshoppers and crickets, beetles and snails that live in semi-natural grasslands.

Lycaena dispar (Photo: P. Dzierza)

[14] The EU Biodiversity Baseline report (EEA, 2010) identified key agricultural species as those that use agro-ecosystems and/or grassland as their preferred habitat. 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] Key farmland 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 in at least one of their seasons (Tucker and Evans, 1997). The numbers of species using each habitat, priority species, dispersed species and species with an unfavourable status are listed in Annex B.

o *Amphibians and reptiles*

The key farmland amphibian and reptile species are often closely associated with mixed mosaic farming areas that are rich in structural elements and farmland features such as ponds, dry stone walls and terraces, and orchards, vineyards or gardens. Other amphibian species may even live in modified habitats, as the Common Spadefoot Toad subspecies (*Pelobates fuscus insubricus*) that is found in some rice fields of the Po Floodplain in North Italy

Orsini's viper (Vipera urisinii) is primarily associated with open meadows

o *Mammals*

The key farmland mammal species include some large grazers that use the extensive pastures created by seasonal or large-scale extensive livestock grazing systems, such as the two chamois species (*Rupicapra* spp) on alpine pastures, or European Bison (*Bison bonasus*) on grassland mosaics with woodland. It also includes mammals that live in diverse mixed mosaic farming landscapes rich in structural elements, including the European Polecat (*Mustela putorius*), Cabrera's Vole (*Microtus cabrerae*), Greater Horseshoe Bat (*Rhinolophus ferrumequinum*), Severtzov's Birch Mouse (*Sicista subtilis*) and the two souslik species (*Spermophilus citellus* and *Spermophilus suslicus*).

European Ground Squirrel (Spermophilus citellus) (Photo: MME Archive)

o *Birds*

Key farmland bird species are birds that have more than 10% of their European population in one or more agricultural habitat types for at least part of the year. Steppe grasslands are especially important as they are relatively rare in the EU yet hold significant populations of 32 key farmland bird species. Semi-natural Mediterranean shrublands and wet grasslands are also particularly important for birds.

Low intensity cereal systems (ie pseudo-steppe) are of high importance for a number of Annex I bird species. Typical farmland habitats are also of importance for a range of widespread generalist bird species listed on Annex I, many of which are relatively dispersed. These require conservation measures in the wider farmed environment.

Pin-tailed Sandgrouse (Pterocles alchata) (Photo: J.M. Cereza)

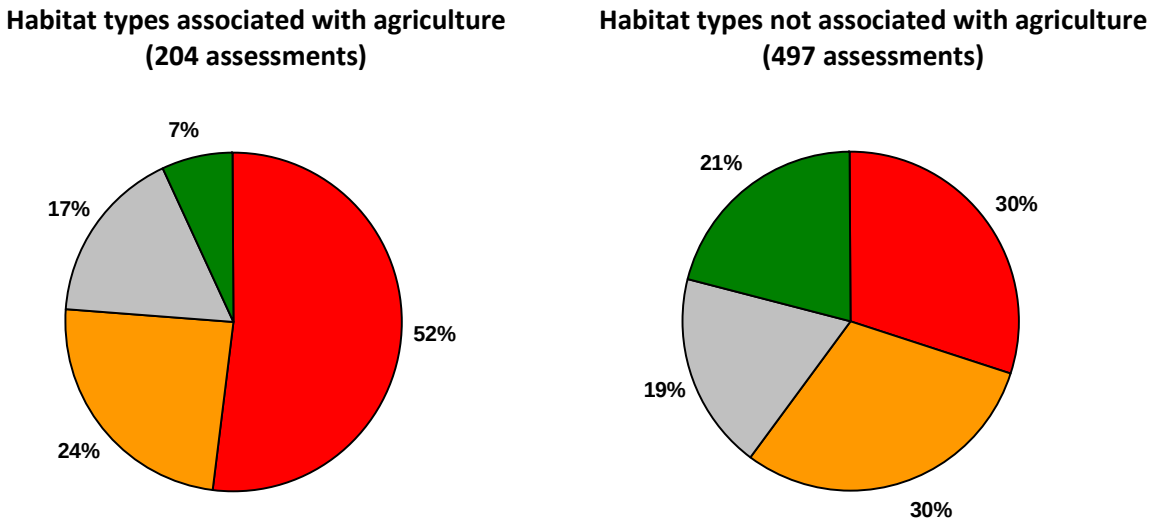
2.3 What is the current conservation status of habitats and species dependent on agriculture?

Member States must report every six years on the conservation status of habitats and species of Community interest within their territory (see Box 2.2). The report for the period 2001 to 2006 concluded that most of the key Natura 2000 habitats and species dependent on agriculture remain under threat – Member States have assessed 76% of the farmland habitats as having an unfavourable conservation status (ETC/BD, 2008; European Commission, 2009).

Comparing the assessments of **habitat types associated with agriculture** with those of other land uses, indicates that habitat types linked to agriculture generally have a worse conservation status, with only 7% of assessments being favourable, compared to 21% for 'non-agricultural' habitats (see Figure 2.2). The reports submitted by the Member States show that grasslands are under the most pressure.

The situation is especially severe in the Atlantic region where none of the habitats associated with agriculture were assessed as favourable. The Atlantic region has the highest pressure on agricultural land and includes some of the most intensively farmed areas in the EU. In the Pannonian and Mediterranean regions, the percentage of favourable assessments for these habitat types was 5% and 3% respectively. However, the situation in the Mediterranean region is complicated by the very high percentage of assessments being reported as being 'unknown' in 2006.

Figure 2.2. Conservation status of habitat types considered as being associated with agriculture compared to those not associated with agriculture (2001-2006)



Source: European Commission, 2009.

The conservation status of 70% of species of European interest in agro-ecosystems is unfavourable, while only 3% are in favourable condition, and for 27% conservation status is unknown; as regards species of European interest in grassland ecosystems, 56% have unfavourable conservation status, while 15% are in favourable condition and for 29% conservation status is unknown.

Box 2.2. Assessment of the conservation status of habitats and species of Community interest

Member States must monitor the conservation status of the natural habitats and species of wild fauna and flora of Community interest present on their territory, ie all the habitats and species listed in the annexes of the Natura Directives. This provision is not restricted to Natura 2000 sites and data need to be collected both in and outside the Natura 2000 network to achieve a full appreciation of conservation status. The main results of this monitoring have to be reported to the Commission every six years according to Article 17 of the Habitats Directive.

The first systematic assessment of the conservation status of habitat types and species protected under the Habitats Directive was carried out in 2007 (covering the period 2001-2006) across 25 Member States and 11 (seven land and four marine) bio-geographical regions. Member States reported on the extent and status of each Natura 2000 habitat type and species within their territory in 2007, and also identified the possible causes of unfavourable conservation status for each habitat and species, using a standard list of threat codes, enabling a relatively comprehensive assessment of the importance of agriculture-related threats to agricultural habitats and species of Community interest. This reporting exercise has provided a first overview and point of reference for assessing future trends. The next reports for the period 2007-2012 will be published in 2014.

Source: ETC/BD (2008) Habitats Directive Article 17 Technical Report (2001-2006). European Topic Centre on Biological Diversity. (http://bd.eionet.europa.eu/article17)

Member States are reporting on the conservation of bird species under the Birds Directive for the first time in 2014.

Bird monitoring is widely carried out across the EU and it is clear that the majority of farmland birds are declining and many are threatened. According to BirdLife International, 55 out of 62 farmland species 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 farmland bird species. Furthermore, 20 of the 62 key bird species have been identified as priority species, and therefore in need of additional special protection measures such as species actions plans[16].

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 farmland species are associated. This clearly shows the importance of these habitats and the need for measures to be developed and put in place to support the farmers and specific farming systems and practices that are essential for the long-term conservation of these habitats.

[16] Although the Birds Directive does not identify priority bird species, the Ornis 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 other some other species that are particularly threatened are a result of their rarity and/or rapidly declining populations.

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

Extensive farming systems within Natura 2000 sites, and other areas of HNV farmland, are highly vulnerable to **agricultural abandonment** (IEEP & Veenecology, 2005; Keenleyside & 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 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 & Veenecology, 2005; Keenleyside & Tucker, 2010).

Extensive livestock management has become unprofitable in many agricultural regions resulting in either abandonment or intensification in the absence of financial support (Beaufoy & 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 in today's market only marginally profitable in terms of their agricultural products (Ecologic, 2006b). For example, 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).

By contrast, the second most important pressure on key farmland habitats and species is the **intensification of management**. Over the last hundred years and particularly since the 1950s, drivers of agricultural development (such as rising prices and commodity markets, 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. Many of the habitats are affected by a combination of abandonment in some areas and intensification in other areas.

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

This section summarises the main pressures on the key farmland habitats and species related to changes in agricultural practices[17]. The results are shown in Figures 2.3 and 2.4.

[17] A detailed assessment of agricultural practices that affect key farmland habitats was carried out on the basis of published literature and expert opinion. Detailed assessments of pressures were also carried out for the key farmland species. The assessment is based on the reporting by Member States on the conservation status of habitats and species included in the Habitats Directive in 2007, as well as on scientific literature and expert opinion (references are listed in Annexes B and D).

The assessment shows that the abandonment of extensive traditional livestock farming practices is the most important pressure on key farmland habitats, as described above. At the same time, other pressures linked to intensification of farming practices are also negatively affecting key farmland habitats and key farmland species of Community interest.

As would be expected, the major pressures on key farmland 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.

- ***Lack of grazing and/or hay cutting***

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 the majority of the species across all taxa groups. The decline or abandonment of hay cutting practices is affecting all Annex I meadow habitats, with evidence of this posing a critical threat to nearly half of the meadow habitat types.

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 the abundance of plant 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, 2008) and to maintain species diversity (Papanikolaou et al, 2011).

- ***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 farmland 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).

Figure 2.3. Proportion of the key framland habitats affected by each pressure, and proportion of critical threats

Key: under-grazing = too little grazing pressure to maintain habitat status, including abandonment**; change in grazing practice =** changes in timing and stock type, use of supplementary feed and lack of shepherding**; over-grazing =** high stocking rates or long grazing periods that damage habitat (incl. vegetation change, soil compaction & erosion, eutrophication, trampling of nests)**; fertiliser or manure =** use of farmyard manure and/or artificial fertilisers**; afforestation =** intentional planting of forestry species, not natural regeneration**; cultivation =** conversion to intensive grassland through ploughing, fertilising and reseeding, or conversion to arable crops**; hydrological changes =** including drainage of wetlands, prevention of natural flooding through modification of natural river or coastal dynamics, changes in groundwater dynamics due to abstraction for irrigation**; poor burning management =** reduction or cessation of burning that reduces conservation status, through lack of controlled burning management or through prevention of natural fires**; reduction in hay cutting =** reduction or cessation of hay cutting due to abandonment**; change in hay cutting/change to silage =** changes in timing of cutting, mechanisation and other unspecified changes in the practice including change from hay or pasture to cutting for silage**; damage from burning =** burning (for agricultural or other purposes) that damages habitat status**; herbicides =** herbicide use that damages conservation status of habitat or species, or pesticide use that damages species**.**

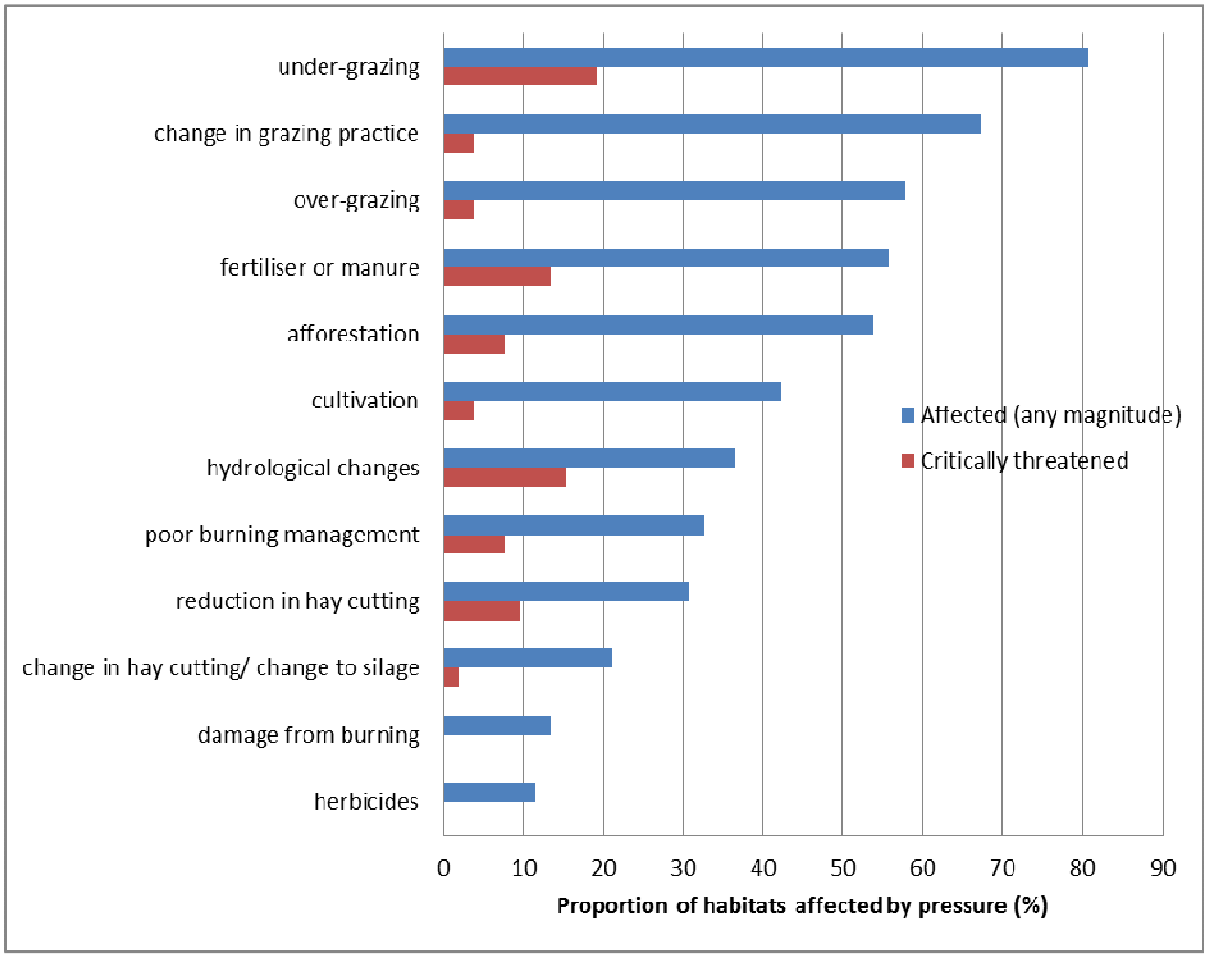
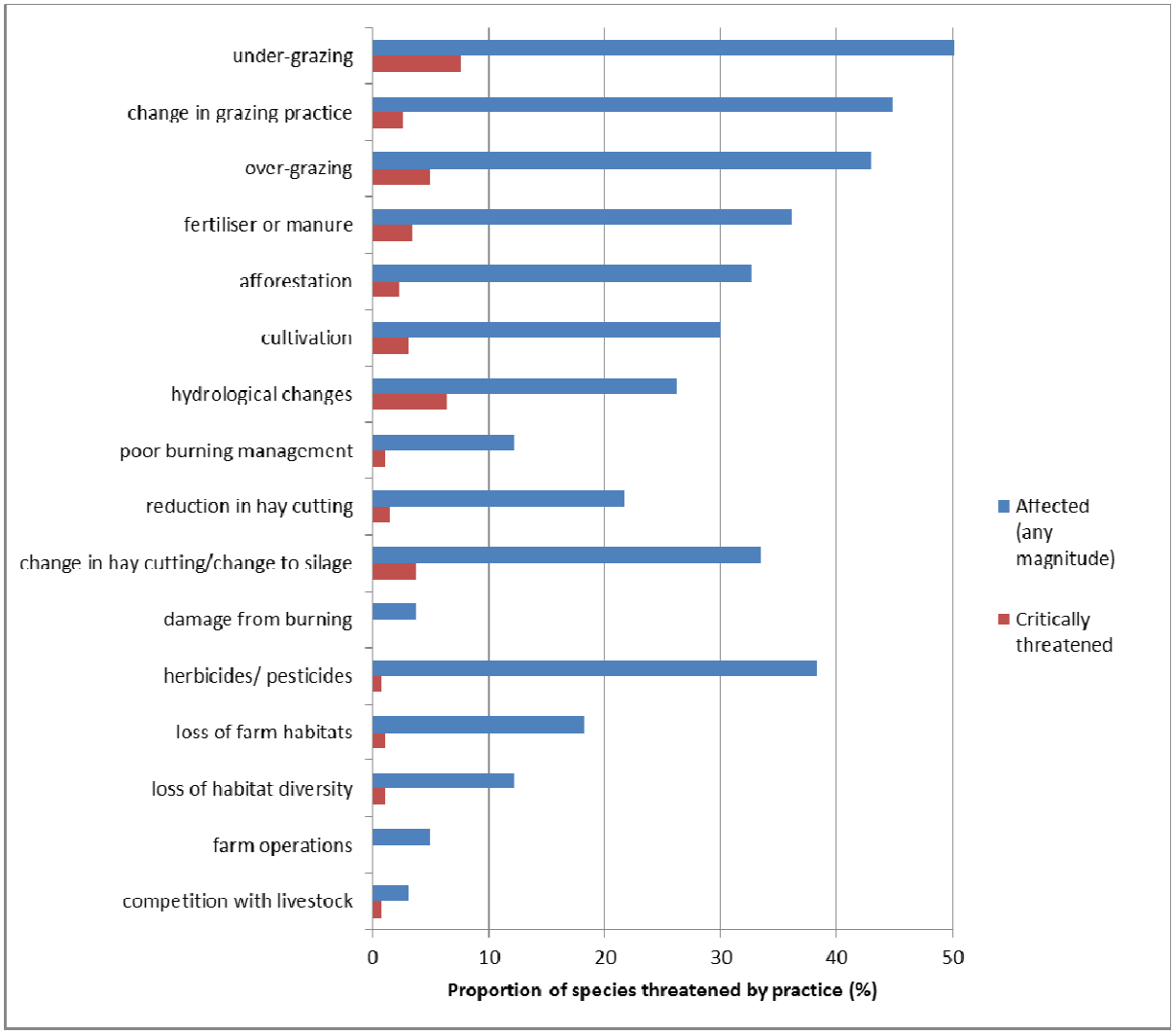


Figure 2.4. Proportion of key farmland species affected by each pressure and proportion of critical threats

Key: see above; **loss of farm habitats** = loss of farmland habitat features (eg hedges, stone walls, terraces, rough grass margins, woodlots, trees, ponds, old buildings); **loss of habitat diversity** = crop specialisation / reduced rotations/ loss of habitat mosaic through agricultural intensification; **farm operations** = death of animals that cannot get out of the way of machinery; **competition with livestock** = competition for habitat or food with game or livestock species or disease transmitted by these species.



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

In Natura 2000 areas where there is potential to increase agricultural productivity or change livestock management, 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 (Van der Wal et al, 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, which increase 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.

- ***Changes in mowing practices and mechanisation***

The mechanisation and intensification of grass cutting has large-scale 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 harvesting of grass (for example for silage production or as fodder for housed livestock) 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).

- ***Fertilisers and lime***

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). 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 have important impacts (Ceulemans et al, 2013).

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).

Some hay meadows receive small amounts of farmyard manure to offset the losses of nutrients through hay removal and so maintain productivity, and this is sometimes 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). Hay meadows under the influence of airborne eutrophication cannot tolerate any fertilisation without losing species diversity.

- ***Herbicides and pesticides***

The use of herbicides and/or pesticides affects many species in some way, although this is usually not a large-scale problem on grassland. For plants, this is through the direct impact of the agrochemicals, but also due to the loss of species providing pollinator and/or 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, 2012; 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 or other antihelminthics against parasites of livestock is negatively affecting invertebrates in dung, and the birds and bats that feed on them (Beynon, 2012; 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).

- ***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 Natura 2000 habitats (Buckingham et al, 2010). Plants and invertebrate species associated with natural or extensively managed grasslands, such as the Large Blue Butterfly (*Maculinea arion*), are particularly affected (Orbicon, Écosphère, ATECMA, Ecosystems LTD, 2009).

- ***Changes in extensive arable farmland practices***

The 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, 2012; 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 ricardoi, Santolina semidentata* and *Notothylas 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).

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

Some grassland and many scrub and heath habitat types have been traditionally managed by controlled burning, to promote new nutritious vegetation growth for livestock and to halt succession to forest. If active burning management is abandoned, with concurrent abandonment of grazing, heathland habitats can become dominated by a few species and lose biodiversity. Furthermore, the increasing dominance of shrubby species and the accumulation of litter can lead to uncontrolled and intense wildfires due to the availability of combustible woody biomass. Such intense burning can spread over very large areas,

resulting in significant soil damage (especially on peatlands) increased run-off and erosion, and may have long-term ecosystem impacts.

- ***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 such as the European Ratsnake (*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, 2012; Temple and Cox, 2009).

- ***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 (Marhoul and Olek, 2010). The species has two annual generations that have partly contrasting needs, and these cannot be provided for under just one land-use or 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.

- ***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*) frequently collide with deer fencing on moorlands in the UK (Baines and Andrew, 2003).

- ***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 resulting from over-abstraction, lowering of drainage channels, or embankment of rivers (Houston, 2008). 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).

- ***Afforestation***

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

In conclusion, 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.

Further information

- *Annexes A, B and C provide further information about habitats types and species that are dependent on or associated with agricultural management, their distribution and current conservation status.*
- *The Natura 2000 biogeographic seminars are assembling detailed information on habitat status, pressures and threats.*
  See: http://ec.europa.eu/environment/nature/natura2000/platform/index_en.htm
- *The Assessment of conservation status of all habitats and species of Community Interest in Article 17 reporting is available at:*
  http://bd.eionet.europa.eu/activities/Reporting/Article_17/reference_portal
- *European Commission (2011) Rural Development in the EU - Statistical and Economic Information. Report 2011. Context Indicator 10: Natura 2000 area. : http://ec.europa.eu/agriculture/statistics/rural-development/index_en.htm*
- *EU Biodiversity Baseline Report (2010): http://www.eea.europa.eu/publications/eu-2010-biodiversity-baseline*
- *High Nature Value farming systems across Europe are described in Oppermann et al (2012). High Nature Value Farming in Europe. 35 European countries - experiences and perspectives. Ubstadt-Weiher, verlag regionalkultur. See:*
  http://efncp.org/publications/books/
- *The European Commission has published guidance on measures to reduce fragmentation (Kettunen et al, 2007). See:*
  http://ec.europa.eu/environment/nature/ecosystems/docs/adaptation_fragmentation_guidelines.pdf
- *The European Commission has produced a series of studies on implementing green infrastructure measures. See:*
  http://ec.europa.eu/environment/nature/ecosystems/studies.htm

3. AN OVERVIEW OF THE MANAGEMENT REQUIREMENTS FOR NATURA 2000

What does this chapter do?

This chapter explains the legal provisions that must be implemented within all Natura 2000 sites to ensure their conservation management in accordance with Article 6 of the Habitats Directive. Key concepts such as achieving favourable conservation status, setting site level conservation objectives, and implementing the necessary conservation measures are explained and illustrated.

The chapter also outlines how Article 6.1 can be implemented in Natura 2000 sites that contain substantial areas of farmland, bearing in mind that the management planning process will necessarily vary from one site to another depending on the ecological requirements of the species and habitats of EU importance present, as well as the socio-economic circumstances and physical characteristics of each site.

3.1 How are Natura 2000 sites to be managed and protected?

As stated in previous chapters, the Habitats and Birds Directives require Member States, amongst others, to designate sites under the Natura 2000 Network to ensure the conservation of a number of rare and threatened species and habitat types of EU importance covered by the two Directives.

It is important to recall that only core areas for these species and habitats are to be included in Natura 2000, it does not require *all* of the areas where they occur to be designated. Other measures are foreseen within the two nature Directives for the protection and conservation of species and habitats of EU importance outside Natura 2000, but as the main focus of these guidelines is on managing Natura 2000 sites, these provisions are not elaborated further here[18].

Once a site has been included in the Natura 2000 Network, Member States are required to manage and protect it in accordance with the terms of Article 6 of the Habitats Directive. Article 6 contains three key provisions; it requires Member States to:

- Implement, on each site, the **necessary conservation measures** which correspond to the ecological requirements of the protected habitat types and species of Community interest present (Article 6.1);
- **Prevent any damaging activities** that could significantly disturb these species or deteriorate their habitats or protected habitat types present (Article 6.2).

[18] For more information on this go to http://ec.europa.eu/environment/nature/conservation/index_en.htm

- **Protect the site from new potentially damaging projects and plans** by setting out a series of procedural and substantive safeguards governing plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3 and 6.4).

Within this structure, it can be seen that Natura 2000 sites are not strictly protected areas where all activities are systematically excluded. It advocates a different approach: one that fully recognizes that humans are an integral part of nature and that the two work best in partnership with one another. In this way, Natura 2000 supports the principle of sustainable development and use. Its aim is not to exclude economic activities, but instead to set the parameters by which these can take place whilst safeguarding Europe's most threatened and valuable species and habitats.

- ***Reaching a 'favourable conservation status'***

The overall objective of the two EU nature Directives is to ensure that the species and habitats they aim to protect reach a 'favourable conservation status' across their natural range within the EU. This objective is defined in a positive way. Thus it is not enough to simply prevent the further degradation or disappearance of the species and habitats listed in the EU Nature Directives. Member States must also take positive measures to maintain and restore these species and habitats to a favourable conservation status.

Natura 2000 sites have a crucial role to play in achieving this overall objective since they harbour the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

The fact that many species and habitats of EU importance currently have an unfavourable conservation status (see Chapter 2) stresses the importance of implementing the provisions of Article 6.1 since it is clear that many species and habitats will require active conservation restoration measures within Natura 2000 if they are to have any hope of reach a favourable conservation status.

- ***Setting conservation objectives***

To ensure that each Natura 2000 contributes fully to reaching this overall target of FCS, it is important to set clear ***conservation objectives*** for each habitat type and species. This requires a regional approach for all but the rarest habitats and species, which can then be translated to site level in each region (Louette et al, 2011). At the site level, the objectives should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

This is best done quantitatively wherever possible or appropriate, for instance by setting specific time bound targets for each of the habitat types and species of EU importance present (eg increase population of Corncrake to 20 pairs within 8 years, increase the area of wet meadow in good conservation condition by 100 ha). See section 3.2 for further discussion.

Box 3.1. What is favourable conservation status?

The term **conservation status** is defined in the Habitats Directive (article 1).

- For a natural habitat, conservation status means "*the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2"* (article 1e).
- For a species, the conservation status means "*the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2"* (article 1i).

The conservation status of a **natural habitat** will be taken as 'favourable' when:

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

The conservation status of a **species** will be taken as '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 habitats, 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.

- ***Identifying the necessary conservation measures***

Once the conservation objectives have been set, the **necessary conservation measures** that are required in order to fulfil these objectives and targets should be identified and negotiated with all involved so that they are effectively implemented. These must correspond to the ecological requirements of the habitats and species for which the site is designated.

***Article 6(1)**: "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"*

In this respect it is important to recall that the obligations arising out of Article 6.1 are obligatory, and not optional (see Box 3.2). In other words Member States must introduce the necessary conservation measures in all cases, and not just 'if need be'. The measures themselves can include both active management and restoration works, such as regular mowing or removal of invading scrub, as well as passive 'non-intervention' actions such as leaving uncultivated or fallow areas.

Box 3.2. Legal interpretation as regards Article 6.1

A court ruling (Case *C-508/04*) has stated that a Member State cannot escape from taking all the necessary conservation measures in Natura 2000 sites. "*It is apparent from Article 6(1) of the Directive that the 'necessary conservation measures' must be adopted in all cases, and not 'if need be'*[19]*. In Article 6(1) the words 'if need be' concern only management plans and cannot be understood as a general restriction on the obligation to adopt the necessary statutory, administrative or contractual measures….*

The Directive requires the adoption of necessary conservation measures, a fact which excludes any discretion in this regard on the part of the Member States …. Moreover, mere administrative practices, which by their nature are alterable at will by the authorities and are not given the appropriate publicity, cannot be regarded as constituting fulfilment of the obligations owed by the Member States in the context of transposition of a directive".

How these conservation measures are to be implemented will vary from site to site depending on the individual conditions in each (eg is it privately owned land or public). Article 6.1 allows a large degree of flexibility in this respect, and leaves it up to each Member State to decide what are the best means of implementing the necessary conservation measures. It can involve, if need be, appropriate ***management plans*** specifically designed for the sites or integrated into other development plans, and appropriate ***statutory, administrative or contractual measures***.

Many Member States use management plans as a tool to guide managers and other interested parties in dealing with the conservation of Natura 2000 sites. In general management plans at site level are used to formulate the site's conservation objectives together with the measures necessary to attain these objectives (although other instruments can be used as well provided that the aim is also to implement the conservation objectives).

Management plans can also function as a tool to lay down the respective responsibilities of the different socio-economic stakeholders, authorities and NGOs in implementing the necessary conservation measures that have been identified.

Management plans can be stand-alone documents or can also be 'integrated into other development plans', in conformity with the principle of integration of the environment into other Community policies. In the case of an integrated plan, it is important to ensure that clear targets and conservation measures are set for the relevant habitats and species concerned within that site.

[19] The Austrian Government contended that the obligation laid down in Article 6(1) was not to adopt conservation measures in all cases, but only the 'necessary' conservation measures. In any event, where such measures were required in addition to the obligations and prohibitions to be laid down pursuant to Austrian law, they were indeed taken by the competent authorities of the Province in order to achieve a favourable conservation status.

Another advantage of a management plan is that it provides a useful tool for ensuring the implementation of Article 6.1 provisions is done in a clear and transparent way, enabling all stakeholders to be informed about what Natura 2000 sets out to achieve and inciting their active participation in this discussion. Management plans may also help to get funding for the measures and achieve better integration into other plans.

It must however be noted that existing management plans for other protected area categories (eg. National or Natural Parks) are not always sufficient to address the management of Natura 2000 sites and should therefore be adapted to the specific conservation objectives pursued in these sites in function of the species and habitats **of European importance** present.

Although management plans for Natura 2000 sites are only suggested in the Habitats Directive, these plans seem to be a preferred option for most Member States and are even considered obligatory in many of them.

3.2 implementing Article 6.1 on Natura 2000 farmland sites

This next section outlines the steps that are needed in order to implement Article 6.1 in Natura 2000 sites which contain substantial areas of farmland. The extent to which each of these steps are to be taken will of course vary from one site to another depending on both the ecological requirements of the species and habitats of EU importance present as well as the socio-economic circumstances and physical characteristics of each site. The steps listed below are therefore only indicative and are intended to help illustrate how Member States might go about implementing Article 6.1.

- ***Identifying Natura 2000 farmland and farming systems***

Identifying Natura 2000 farmland firstly requires mapping or otherwise locating the key farmland habitats and the farmed areas used by key species. In this respect, it is important to include partially or recently abandoned key farmland habitats that could be restored, even if there is little or no evidence of current farming activity. It should be noted that Member State records of Utilised Agricultural Area (UAA) may not capture all Natura 2000 (or HNV) farmland, and in some cases considerable areas of key habitats managed by farmers are not recorded as UAA.

A second stage is to identify the farming systems that are present in this farmland (or were until recently, in the case of abandoned land). Many farming systems are complex, using different parcels of land, sometimes widely separated, for different purposes that all contribute to the functioning of the farm. Measures to manage specific Natura habitats within that system (for example seasonally grazed semi-natural habitats, hay meadows or fallow land) are likely to fail if the relationship with the rest of the farm is not taken into account when setting objectives and planning management measures.

This is a particular risk if the farming system as a whole is uneconomic, where supporting the management of only one part may not prevent abandonment or intensification of the system as a whole. Some livestock farming systems are highly adapted to specific habitats,

for example pastoral systems with transhumance, common land, or short-term grazing by the flocks of landless graziers.

When both stages are complete it will it be possible to identify the full extent of the farmland, farms and farmers that will need to be taken into consideration when deciding which conservation measures are need to achieve the site's conservation objectives. That is why it is important, at this stage, to also collect as much information as possible about all relevant stakeholders that should be involved or consulted in the management planning process.

- ***Identifying targets for key farmland habitats and species***

Member States have a clear responsibility under the Birds and Habitats Directives to ensure all habitats and species of Community interest are maintained or restored to Favourable Conservation Status (see section 3.1 above). However, in practice it is necessary to consider which habitats and species may need most urgent and extensive conservation measures to achieve this.

Therefore, in the context of these guidelines on farmland habitats and species, it is important that Member States review the status of their key farmland habitats and species, on a national, regional and biogeographical basis as appropriate. Key farmland habitats and species (as defined in Chapter 2) should be the initial focus of this assessment, although in some countries other habitats and species of Community interest might also have important relationships with farming, and might therefore also be worthy of consideration.

It is suggested that prioritisation and target setting for each key farmland habitats and species should take into account the following attributes of particular conservation importance:

- The proportion of the habitat area / or species population that has an unfavourable conservation status at an EU, biogeographic and national level[20]
- The proportion of the total EU and/or biogeographic habitat area or species' population that occurs within the Member State (see Annex C for indicative current estimates of key agricultural habitats in each Member State)
- The proportion of the habitat area or species' population that occurs within Natura 2000 sites within the Member State

Once the status of the key habitats and species have all been assessed then it is useful to consider setting targets for their conservation within each Natura 2000 site. For example, targets could be set to increase (ie restore or re-create) habitats or species populations that are too small (and/or fragmented) to be viable in the long-term (Kettunen et al 2007). For other less threatened habitats it might be appropriate to have a target that aims to maintain certain percentage of them (eg to maintain 95% in favourable conservation status).

It is important to note that target setting should also take into account practical considerations, such as the ecological feasibility of restoring habitats as well as additional

[20] This should be based on the most up to date Article 17 assessments, and give special attention to the proportion that is assessed as being in 'unfavourable – bad condition'

benefits from ecosystem services that may be obtained (e.g. increasing carbon storage, water resource and flood management, and recreation and landscape protection benefits). Such additional benefits might increase local community support for conservation actions, and create opportunities for alternatives sources of funding.

- ***Assessing pressures and potential impact on conservation status***

Having identified the areas of farmland and set targets for key farmland habitats and species within Natura 2000, the next step is to identify the drivers and pressures facing the various farming systems upon which the management of Natura 2000 farmland depends. This analysis will help to identify both the farming systems and land threatened by future abandonment or intensification, allowing intervention before it is too late.

Combined with information on targets and priorities for key farmland habitats and species, this will enable managing authorities to set strategic priorities for practical measures to address pressures and achieve conservation targets, through for example developing combined packages of measures that address a number of habitat and species targets.

It is also important to compile the best available information on the status of farmland habitats and species. This requires access to reliable, up-to-date and extensive ecological data (eg inventories, habitat maps and species atlases), and therefore surveys may need to be carried out and records compiled and mapped. Such actions can be costly, however, experience and evidence shows that well researched, designed and targeted measures are more cost-effective overall. Making best use of local, national and international expertise and using available services[21] is helpful in this respect.

- ***Establishing Natura 2000 site conservation objectives at the site level***

As explained above, Member States need to set conservation objectives for each Natura 2000 site. Site-level conservation objectives should define the condition to be achieved for each species and habitat types of EU importance present within that site in order to maximise the contribution of the site to achieving their overall Favourable Conservation Status.

This will involve assessing at the site level the degree to which the Natura habitat or species concerned needs to be maintained at a particular conservation status, or, more often, to be restored to an improved conservation status (Box 3.3 and Box 3.4). It is important to design clear and accepted conservation objectives, as these are the basis on which the conservation measures should be defined. 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.

Site level conservation objectives should be based on the ecological requirements of the Natura 2000 habitat types and species. The ecological requirements involve all the ecological needs of abiotic and biotic factors necessary to ensure the favourable

[21] E.g. such as www.conservationevidence.com

conservation status of the habitat types and species, including their relations with the environment (air, water, soil, vegetation, etc.).

These requirements rest on scientific knowledge and can only be defined on a case-by-case basis, as they will vary from one species to another but also for the same species from one site to another. 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. Adequate baseline information is needed to set site-specific conservation objectives.

Box 3.3 ***How can conservation objectives be set for farmland areas in Natura 2000?***

When setting site-specific conservation objectives, it may be useful to consider the parameters that are used to assess the conservation status of habitats and species of EU interest (as part of the Habitats Directive Article 17 reporting process). As regards the habitats, these parameters include the range, the area covered by the habitat type within its range, as well as the specific structure and functions (including typical species) in the habitat. For the species, the range, the population and habitat area are considered. Some examples of attributes that may be considered in the definition of conservation objectives are presented below:

- Habitat area: The area occupied by the target habitats should be stable or increasing (overall target areas can be set).
- Habitat structure and function: The communities of target habitats should be stable in distribution and composition. Habitat functions and the ecological parameters on which the habitat persistence depends are maintained.
- Species abundance and distribution, population structure, etc.: Species populations are stable or increase (target numbers can be set). Population trends are improving. Species distribution, including vital areas and connectivity, is maintained or improved (e.g. through habitat improvement and re-colonisation of improved areas). Population structure is conserved.

- ***Communicating the objectives of Natura 2000***

Farmers and the wider public will not be convinced of the need for farmland management for Natura 2000 unless they can understand the need for conservation measures and how setting conservation objectives for their farmland within their Natura site can play an important role in achieving national and regional targets.

Member States therefore need to engage in a dialogue with stakeholders, particularly the local land managers, and provide easily accessible information on strategic targets and conservation objectives in relation to agricultural habitats and species. They also need to ensure that conservation objectives can be presented in ways that are relevant and easily understandable to farmers and land managers. This is important to enable a two-way discussion with the authorities about how their farmland management can contribute to the conservation of the Natura 2000 site. Famers may have a very good understanding of previous land management that has led to conservation successes or failures.

Box 3.4 ***Some examples of site-specific conservation objectives***

Some specific conservation objectives for Natura 2000 sites hosting dry farmland and steppe bird communities in Spain include:

- Maintain and recover suitable habitat in quality and extent for different species of steppe birds of Community interest, taking into account their particular ecological requirements.
- Reduce threatening factors and pressures on bird species of Community interest linked to agricultural and other human activities in the site.
- Minimize the impact on birds of some mechanical work, mainly those related to cereal crops.
- Increase the quantity and quality of fallow land and ensure its proper management.
- Conserve and restore the quantity and quality of hedges and areas of natural vegetation associated with agricultural plots.
- Protect the vegetation associated with small seasonal streams.
- Promote the maintenance of agricultural landscape mosaic, which is facilitated by the rotational crops used in traditional extensive agriculture.
- Develop a more efficient system of integrated production with more stable yields and lower costs.
- Promote extensive livestock farming to maintain natural grasslands in certain areas.
- Promote pasture improvement though seeding adequate mixture of different local varieties of suitable species.

This is a non-exhaustive list of the type of objectives that can be set in Natura 2000 steppe and dry farmland areas. The formulation here presented is rather general, but in site-specific conservation objectives the habitats, species, surface areas, population numbers and other relevant parameters are specified in more detail.

Source: Several management plans for Natura 2000 sites hosting dry farmland and steppe birds in Spain.

- ***Establishing the necessary conservation measures***

Conservation measures are the practical actions that need to be put in place in order to achieve the site's conservation objectives. They must correspond to the ecological requirements of the habitats and species for which the site is designated and take account of economic, social and cultural requirements, as well as regional and local characteristics (Article 2.3).

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). Appropriate instruments for implementing these conservation measures can include management plans specifically designed for the sites or integrated into other development plans, and/or appropriate statutory, administrative or contractual measures.

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. Many Member States use site-specific management plans to guide managers and other interested parties for dealing with the conservation of the Natura 2000 sites through different measures.

In general management plans at site level are used to formulate the objectives together with the measures necessary to attain these objectives. Management plans can also function as a tool to lay down the responsibilities of the socio-economic stakeholders, authorities and NGOs for the implementation of management, to establish the allowed activities and identify potential threats from certain activities on the sites' qualifying interests.

Furthermore, national, regional or European conservation action plans for certain species or habitats (also sometimes referred to a species action plans) can also be used to guide the necessary conservation measures to be implemented on each site. These can propose and define conservation measures in different sites and locations and serve as a tool to implement those measures in particular Natura 2000 sites. Sectoral management plans (e.g on forestry, agriculture, water) can also set conservation objectives and specific measures for Natura 2000 sites.

Statutory measures usually follow a pattern laid down in procedural law and can set specific requirements in relation to activities than can be allowed, restricted or forbidden in Natura 2000 sites. **Administrative measures** can set relevant provisions in relation to the implementation of conservation measures or the authorisation of other activities in Natura 2000 sites.

Contractual measures involve setting contracts or agreements usually among managing authorities and land owners or users in the site. Agri-environmental agreements with farmers within the Rural Development Regulation are one example of a voluntary 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 management that does not involve any payment or incentive.

In any case, the necessary conservation measures should be designed with sufficient detail to ensure an efficient implementation. The precise location and a description of the means and tools required for their implementation should be provided. An adequate work plan indicating the time of implementation and assigning the roles and responsibilities for those involved in the implementation of the measures should also be provided. The work plan should be flexible enough to allow its review and adaptation when required, eg. on the basis if the actual results of the measures already done.

It is important also to set a timeline to review the conservation measures taken, in terms of their suitability for, and progress towards, achieving the conservation objectives in order to check appropriateness, measurability and implementation.

Compliance with the management plans or established conservation measures in Natura 2000 sites should be ensured when planning for management of farmland in these areas.

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

Horizontal measures can be suitable for certain habitat types/species across a whole region or country, or to tackle diffuse pressures such as eutrophication from agricultural run-off. In some situations, a few simple requirements that can be applied across the whole farmed landscape may be useful. Furthermore, these measures may not necessarily be new, as existing measures can also contribute to achieving the conservation objectives.

On the other hand, more specific local approaches may be required in certain areas, including highly tailored and targeted measures that are best suited to the specific management needs of a particular species or habitat in a particular location. It is particularly important to understand the life cycle and ecological requirements of species when designing management measures for particular species. Local conditions can introduce some variation in the specific needs of habitats and species.

It is important to define clearly what, if any, necessary conservation measures are required by law, and specify to whom and to which land these obligations apply. Obligatory land management requirements for farmers are likely to have an impact on the scope to offer incentive payments, because the obligations will form part of the reference level[22] for some payments (for more details see section 5.3).

3.3 Identifying the resources needed for managing Natura 2000 sites

It is crucial to identify the financial needs for appropriate management of the Natura 2000 sites in order to optimise their contribution to the conservation of habitats and species of Community interest. The identification of the necessary conservation measures (eg. in management plans and other instruments) is a first step.

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. The Commission has urged Member States to produce **prioritised action frameworks (PAFs)** for financing Natura 2000, which identify the strategic priorities and the measures to be carried out for the period 2014-2020 as well as the funding instruments that may be used to implement those measures[23] (Box 3.5).

[22] The reference level defines the dividing line between the level of environmental provision that farmers are expected to deliver at their own expense, and an enhanced level of environmental management for which farmers may be paid to deliver, for example through agri-environment schemes (Kristensen and Primdahl, 2006)

[23] SEC(2011) 1573 final

European co-financing

Opportunities for funding Natura 2000 have been included in each of the relevant EU funds for the 2014-2020 financing period[24]. In particular, the Common Agricultural Policy (CAP) has been and will continue being an important financial source (see chapter 5). 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 its views on the importance of Union funding for biodiversity and nature protection in the new multiannual financial framework, and stated that this needs a strengthened integrated approach that ensures the integration of the priorities of Natura 2000 action frameworks into the national and regional programmes of EU sectoral funds (European Commission, 2011)[25].

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.

The Commission has also 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.

Prioritised action frameworks serve as strategic planning tools to strengthen the integration of Natura 2000 financing into relevant EU financial instruments for the new programming period, particularly the relevant operational programmes of the different funding instruments.

Ensuring sufficient funding for implementation

Although a range of EU policy instruments potentially provide funding for Natura 2000 management, in practice not enough funding is being allocated or accessed by Member States: it is estimated that currently only a fifth or less of the funding that would be necessary is actually being made available (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 sector recognition or stakeholders' capacity, hinder the uptake of opportunities provided by the EU co-financing framework (Kettunen et al, 2011).

[24] Cohesion funding in COM (2011) 612 final, COM (2011) 614 final; Common Agricultural Policy in COM (2011) 625 final, COM (2011) 627 final; European maritime and fisheries policy in COM (2011) 804 final; LIFE financial instrument for the environment and climate action in COM (2011) 874 final

[25] European Commission Communication on *'A budget for Europe 2020'* COM(2011) 500 final, Part I (and the environment and climate policy fiches COM(2011) 500 final, Part II)

Box 3.5 ***The Prioritized Action Framework, a strategic planning tool for Natura 2000 financing***

Article 8 of the Habitats Directive requires the Commission to adopt a prioritized action framework of measures involving co-financing to be taken in Natura 2000 sites, having regard to the available sources of funding under the relevant Community instruments, and based on the identification of the relevant measures, their costs and the financing, including co-financing, required for their implementation. This will only be possible on the basis of Member States establishing National and/or regional Natura 2000 prioritised action frameworks (PAFs) for the next financing period (2014-2020)**.** Such an approach will provide a clearer framework to set out objectives and priorities, describe the Natura 2000 measures to be financed, identify the potential contribution of each EU fund to the national/regional Natura 2000 network for the next Financial Perspective and set out the prioritised actions to be taken, as well as monitoring and evaluation of the measures supported. The Habitats Committee has developed a uniform format for prioritized action frameworks together with Member States.

PAFs are intended as planning tools aimed at identifying key priorities and providing an integrated overview of how to achieve them having regard to different financing instruments. Member States' Prioritized Action Frameworks identify their strategic conservation priorities for Natura 2000 for the period 2014-2020. Member States also need to specify their financing needs for Natura 2000 under the relevant plans or programmes. To maximise their influence and the prospect of the uptake under the integration approach such action frameworks need to be established in advance of the finalisation of the agreement of key programmes for agriculture, fisheries and regional development for the 2014-2020 funding period. The objective is to ensure strategic focus on the most important priorities, as well as complementarity and consistency between the information contained in the prioritised action frameworks and the relevant programmes.

Further information: http://ec.europa.eu/environment/nature/natura2000/financing/

Member States should set priorities and develop policies and measures which reflect their national and regional specificities. Effective management and restoration of Natura 2000 protected requires a strategic planning that uses the opportunities offered by EU sectoral policies and the relevant funds to provide funding.

Chapter 5 describes the European co-financing opportunities. Recommendations on planning the financing of Natura 2000 farmland management are provided in Chapter 6.

Further information

- Guidance by the European Commission on managing Natura 2000 sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission, 2000. http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm
- European Commission interpretation note on the definition of Conservation objectives for Natura 2000 sites, and new guidance on the definition of conservation measures in accordance with Article 6(1).

  http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/commission_note2.pdf
- European Commission guidance on Financing Natura 2000: http://ec.europa.eu/environment/nature/natura2000/financing/

4. RECOMMENDATIONS FOR AGRICULTURAL MANAGEMENT OF NATURA 2000 HABITATS AND SPECIES

What does this chapter do?

This chapter summarises the main management measures needed to maintain in favourable conservation status key agricultural habitats and species in Natura 2000 sites.

It provides recommendations on the key aspects to consider in the implementation of suitable agricultural practices that can contribute to the conservation of Natura 2000 habitats and species.

4.1 Habitat management

Low intensity agricultural management is necessary for the continued existence of the semi-natural habitat types and species identified in this guidance, and for achieving favourable conservation status of key habitats and species linked to agricultural practices in Natura 2000 sites. Restoration actions are also often necessary prior to the re-introduction of suitable long-term management.

These management measures will mostly be implemented by farmers and adequate support should be provided to them. Some farmers are already carrying out good management measures and it is important to recognise and support their role in conserving and managing these habitats. Others will need support to reinstate management on abandoned land or to refrain from intensification of farmland.

This section describes the main agricultural practices that can contribute to suitable management of Natura 2000 habitats and species.

Grazing

Most of the habitats considered in this guidance 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. 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. However, a small number require higher 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.

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.

Sheep and cattle folding, location of water and shelter

In some parts of Europe where shepherds are used, sheep and cattle have been traditionally kept in fenced areas at night for protection from predators. This practice known as 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.

Controlled burning

Some grazed natural and semi-natural grasslands, scrublands and heathlands may need careful burning management to prevent establishment of woody species (especially in absence of adequate grazing), reduce litter and release nutrients. Burning can help maintain low nutrient conditions, particularly where atmospheric pollution results in higher than natural nutrient inputs from rainfall. In upland heathlands, such as the moorlands of the UK, controlled burning of small patches is widely carried out to increase the structural diversity of vegetation, by maintaining a presence of all growth phases of the dominant heath species, which will promote invertebrate and bird species richness. However, inappropriate burning management (eg burning large areas, too frequently, the wrong type or age of vegetation, or on peat soils) leads to significant negative impacts.

Therefore if required, burning management must be very carefully planned and controlled (especially if there is a risk of fires getting out of control) and strictly carried out according to national regulations and guidelines, such as those listed at the end of this chapter.

Mowing/hay-cutting

Many semi-natural grasslands (meadows) are cut for hay to produce forage that can be stored for winter feeding of cattle. Some low productivity grassland types, such as *Molina* meadows, have traditionally been cut late for animal bedding litter. 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 after breeding birds have hatched and plants have set seed, when the grass reaches about 50–120 cm high. 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 at different times. 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. However, in some regions traditional hay cutting practices require that the hay is cut short just above the moss layer, and the timing of cutting can vary.

- *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 (Dover et al, 2011). However, in some habitats and for many grassland butterfly species, for example, very low intensity grazing can be an appropriate substitute for mowing.

Restricted or no 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. 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.

Fertilisation of meadows is also generally not recommended, especially not in areas that have not been fertilized previously. Some meadows have traditionally been managed with low inputs of manure to offset the loss of nutrients through hay removal, or fertilised through periodic flooding that brings in nutrient-rich sediment. Nowadays, many meadows are affected by eutrophication, and fertilisation must be strictly controlled or prohibited, both within the habitat and in the surrounding area. However, some mountain and lowland hay meadow types may, under some circumstances, benefit from a small amount of fertilisation to maintain productivity and species diversity. The effect on species diversity needs to be considered before any level of fertilisation is applied, taking into consideration the effects of eutrophication. An integrated multi-taxa approach to management is recommended to determine the minimal detrimental impact on species richness and diversity in such meadows.

More intensive restoration measures including habitat re-creation

In areas where farmland habitats are damaged by pressures from intensive agriculture, substantial restoration measures may 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 in some cases removal of nutrients. This may include removal of nutrient enriched top soil or several years of cultivation and removal of nutrient greedy crops.

- *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 replanting, protection of young trees from grazing, and rotation of grazing.

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. 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 (Eriksson, 2008).

- *Coastal hydrology*. Coastal habitats, including meadows and dune systems, depend on regular disturbance through the action of tides, waves and wind. Managed re-alignment, ie the removal of coastal defences in order to restore natural coastal dynamics, can re-create open habitat, and restore habitat dynamics, 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 defences 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 regulated tidal exchange, which is important for coastal meadows and pastures.

4.2 Species management

The measures necessary to maintain and restore favourable conservation status for most key farmland species will be the same or similar to those described in the previous section for key farmland habitats. 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.

It is beyond the scope of these guidelines to identify the full range of additional actions that may be necessary for all key farmland species. However, some particularly common or important generic actions for species conservation include:

- Ensuring all feeding, breeding and shelter related habitat requirements are provided across all seasons and within the species' home range area, which may require a mosaic of different habitat patches.

- Maintenance of particular habitat features, such as hedges, trees, ditches etc, as described further below.

- 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 and timing, 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 (see Chapter 6). It is important to note that many species of Community interest are also dependent on habitats outside Natura 2000 designated sites.

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;

- no deep ploughing on arable land on sandy soils where Common Spadefoot Toad (*Pelobates fuscus*) is present, or on loamy soils where hamster species (*Cricetus cricetus* or *Mesocricetus newtoni*) are present;
- 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 leave uncut strips or patches as refuges, use a cutter bar mower, use a chain bar in front of the mower to warn animals, avoid conditioning hay (crushing newly cut grass to make it dry faster);
- marking of fences (eg with reflective shapes) to prevent collisions by large birds, e.g. Great Bustard (*Otis tarda*)
- creation of nesting plots or refuge strips.

Key measures to conserve species on intensively managed agricultural land

Some key species, particularly geese and other water birds, and the European hamster, are found on intensively managed agricultural land. Measures for these species tend to be variable and species specific but examples include:

- management of grazing damage by geese and other water birds (mainly in winter) by providing sacrificial crops or crop residues (with compensation to farmers) in undisturbed areas
- protection of breeding birds from farm operations by marking nests
- restricting pesticide use to maintain invertebrate populations, especially in field margins
- maintenance of groundwater levels, winter flooding, and/or soil structure to ensure good soil penetrability for foraging birds
- measures for the European Hamster (*Cricetus cricetus*) – maintenance of green fodder areas, sacrificial cereal strips, no deep ploughing to prevent burrow damage (see Netherlands case study in Annex E).

Protecting, maintaining and restoring farmland habitats for species

Farmland habitats 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 in Annex E).

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

- hedgerows, copses or small woodlands, single trees and bushes in fields – may need protection against grazing and browsing, trimming and pruning, and replacement planting to maintain continuity;
- trees and bushes traditionally used for pollarding and coppicing should be maintained in traditional ways, and if necessary replanted to ensure the continuity of habitat; large veteran trees in agricultural areas need to be preserved by careful management and removal of competing vegetation, replanting as necessary to maintain continuity;
- 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.

Maintaining viable populations and meta-populations

Habitat patches must be sufficiently large to maintain viable populations, or sufficiently connected to support meta-populations[26]. 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. Forests and arable fields can also be effective barriers for grassland species, and open grassy hedge margins, roadside and railway verges may provide essential corridors linking meta-populations, provided they are managed appropriately.

[26] 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.

4.3 Key considerations for planning the management of Natura 2000 farmland

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

- **Clear locally tailored conservation objectives** - For measures to be effective, the conservation objectives for each site must be clear and understandable, so that the management measures can be clearly related to the objectives. Where objectives are clearly articulated, generally appropriate management measures can be identified to address these objectives, which makes it much easier to translate into effective implementation on the ground (Poláková et al. 2011).

- **Locally adapted management -** Agricultural measures must be tailored and targeted in order to be effective. 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. It is important to consider site-specific management history, as habitats will often have adapted to and depend on the continuation of traditional regimes.

- **Using best available knowledge -** Management planning should make use of both expert conservation knowledge and local farming knowledge. It is crucial to **learn from best management practices** and from best scientific evidence by consulting conservation experts and managers both in the country and internationally. It is important to **consider traditional knowledge and practice** where it has proved to be effective in preserving habitat quality.

- **Restoration actions** are often necessary prior to the re-introduction of suitable long-term management.

- **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 objectives.

- **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.

Further information

Annex D describes more specifically the main management measures needed to restore and maintain each of the key Annex I habitats dependent on agricultural management. Further literature on habitat management recommendations and guidance is also provided.

Management recommendations for some habitat types dependent on agricultural management are provided in the Commission web site on Natura 2000 management. http://ec.europa.eu/environment/nature/natura2000/management/habitats/models_en.htm

Management recommendations for certain Natura 2000 species are provided in the reports from the Wildlife and Sustainable Farming Initiative (2007-2009), which describe how the conservation of certain wildlife species protected under the Habitats and Birds Directives can be supported through the Rural Development Programmes (2007-2013).
http://ec.europa.eu/environment/nature/natura2000/management/best_practice_en.htm
and
http://ec.europa.eu/environment/nature/natura2000/management/docs/species_report.pdf

The Natura 2000 Knowledge Base offers access to management knowledge on habitats and species, relevant contacts, a forum for discussion, as well as relevant events, documents and news at:
http://ec.europa.eu/environment/nature/natura2000/platform/index_en.htm

European Commission semi-natural grasslands library is a growing source of information http://ec.europa.eu/environment/nature/natura2000/calendar/index_pubs.htm

5. THE CAP AND OTHER SOURCES OF FUNDING FOR NATURA 2000 FARMING SYSTEMS

What can you find in this chapter?

This chapter describes the most relevant measures for farmland management in Natura 2000 under the Common Agricultural Policy (CAP). The review is based on the evidence of how Member States have used CAP measures in the 2007-2013 period, and identifies the funding opportunities that are available from 2014, taking into account the main legislative changes introduced in the recent CAP reform.

The range of policy instruments described here include those under both Pillars of the CAP, together with some other important EU funds such as the Structural Funds and the LIFE instrument. This chapter also reviews the potential of market-based approaches to support Natura 2000 management through, for example, payments for environmental services and accreditation and labelling schemes.

5.1 EU funding for Natura 2000 farmland

This section summarises the main policy and funding instruments that can be used by Member States to maintain or restore the farming systems and agricultural management required for the conservation of Natura 2000 farmland sites and species. By far the most important are the two Common Agricultural Policy Funds, the European Agricultural Guarantee Fund (EAGF) which supports Pillar 1 of the CAP and the European Agricultural Fund for Rural Development (EAFRD) which supports rural development under Pillar 2. The reform of the CAP and the Structural Funds aims to improve the complementarity, coordination and added value of EU expenditure, and from 2014 Member States will have to demonstrate how they intend to do this before expenditure programmes for 2014-20 are approved.

The Common Provisions Regulation[27] introduces for the first time a set of common objectives and rules for five EU Funds that hitherto have been managed separately, including the EAFRD and the Structural Funds[28]. In addition to their specific objectives, each of these Funds will now support eleven thematic objectives, including that of 'preserving and protecting the environment and promoting resource efficiency'[29]. Each Member State has to set up a Partnership Agreement (PA) with regional and local authorities, economic, social and environmental bodies and NGOs, setting out in some detail how it intends to use the five Funds during 2014-2020, and submit the Partnership Agreement to the Commission

[27] Regulation (EU) No 1303/2013 of 17 December 2013

[28] The five, which will be known collectively as the European Structural and Investment (ESI) Funds are: the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Cohesion Fund (CF), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF).

[29] Article 9 of Regulation (EU) No 1303/2013 of 17 December 2013

for approval. In effect, this means that if Natura 2000 support under these five Funds is not identified in the Partnership Agreement it is much less likely to be approved by the Commission in the relevant 2014-2020 programmes for each Fund. Table 5.1 identifies the principal sources of EU funding for Natura 2000 farmland, and the main EU legislation which controls the use of these Funds by Member States.

Table 5.1. The EU funds that can support Natura 2000 farmland management

EU Fund	Relevance to Natura 2000 farmland management
CAP Pillar 2 European Agricultural Fund for Rural Development **(EAFRD)**	Key source of funding which Member States can use to support conservation management of Natura 2000 farmland and the sustainable socio-economic development of the Natura 2000 farming systems and associated local communities.
CAP Pillar 1 European Agricultural Guarantee Fund **(EAGF)**	Important source of a range of direct payments, which can help to support the economic viability of low-intensity Natura 2000 farms and farming systems in the face of economic pressures for intensification or abandonment.
European Regional Development Fund (ERDF) **European Social Fund (ESF)** **Cohesion Fund (CF)**	Funding must be relevant to the broader context of sustainable socio-economic development of the region. Relevant objectives include preserving and protecting the environment and promoting resource efficiency, strengthening competitiveness and innovation of small businesses, creating jobs and promoting environmentally sound growth, promoting social inclusion, education and training,.
LIFE	Important funding for innovative and demonstration land management projects, but not a source of ongoing management funding. LIFE is highly selective and only funds activities that are not eligible for other Community funding.
Main EU Regulations governing the use of these funds: **Direct Payments**: Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009 (2013) OJ L347/608, 20.12.2013. Commission Delegated Regulation (EU) No 639/2014 of 11 March 2014 supplementing Regulation (EU) No 1307/2013 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 and amending Annex X to that Regulation (2014) OJ L181/1, 20.06.2014 Commission Implementing Regulation (EU) No 641/2014 of 16 June 2014 laying down rules for the application of Regulation (EU) No 1307/2013 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 (2014) OJ L181/74, 20.06.2014 **Horizontal:** Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008 (2013) OJ L347/549, 20.12.2013.	

Commission Delegated Regulation (EU) No 640/2014 of 11 March 2014 supplementing Regulation (EU) No 1306/2013 of the European Parliament and of the Council with regard to the integrated administration and control system and conditions for refusal or withdrawal of payments and administrative penalties applicable to direct payments, rural development support and cross compliance (2014) OJ L181/48, 20.06.2014

Common Provisions: Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006 (2013) OJ L347/320, 20.12.2013.

EAFRD: Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 (2013) OJ L347/487, 20.12.2013.

Transitional provisions**:** Regulation (EU) No 1310/2013 of the European Parliament and of the Council of 17 December 2013 laying down certain transitional provisions on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), amending Regulation (EU) No 1305/2013 of the European Parliament and of the Council as regards resources and their distribution in respect of the year 2014 and amending Council Regulation (EC) No 73/2009 and Regulations (EU) No 1307/2013, (EU) No 1306/2013 and (EU) No 1308/2013 of the European Parliament and of the Council as regards their application in the year 2014

ERDF: Regulation (EU) No 1299/2013 of the European Parliament and of the Council of 17 December 2013 on specific provisions for the support from the European Regional Development Fund to the European territorial cooperation goal. (2013) OJ L347/259, 20.12.2013.

LIFE: Regulation (EU) No 1293/2013 of the European Parliament and of the Council of 11 December 2013 on the establishment of a Programme for the Environment and Climate Action (LIFE) and repealing Regulation (EC) No 614/2007 (2013) OJ L347/185, 20.12.2013.

Important note: *other detailed rules under these Regulations will be set out in delegated acts and implementing acts to be published later in 2014*

Increasing the current level of allocation and uptake of available funds to meet the shortfall in Natura 2000 support (described in section 3.3) depends almost entirely on decisions made by Member States in 2014 on prioritisation and allocation of the financial resources available to them within both Pillars of the CAP.

The new programming tools offer Member States the opportunity to secure improved support for Natura 2000 farmland management in the key funding programmes, particularly the CAP, but of course this must be done within the context of very many other competing priorities for EU funding. The first task is to strategically plan Natura 2000 funding needs and co-ordinating actions within and between the different funding streams. Member States' Prioritised Action Frameworks set out the strategic conservation priorities for Natura 2000 for the period 2014-2020 and provide the basis for calculating the type, scale and sources of funding needed to deliver these priorities (see section 3.3). Natura 2000 authorities also want to ensure that their interests are represented in both the Partnership Agreement submitted for Commission approval and the subsequent work of the Partnership.

5.2 Introduction to the reformed CAP as a key source of funding for Natura 2000 farmland from 2014

The two Pillars of the CAP differ in terms of financing, functioning and structure. Pillar 1 is financed fully from the EAGF and provides direct payments to farmers (and also funds other measures such as market interventions and export refunds). Pillar 2 is co-financed jointly by the EAFRD and Member States and offers a wide range of measures to support farmers and other land managers and rural communities through the multi-annual Rural Development Programmes (RDP) prepared by national or regional administrations. The new Regulations introduce significant changes that are relevant to support Natura 2000 farming from both Pillars.

Changes to Pillar 1 income support payments to farmers

The focus of Pillar 1 continues to be the provision of decoupled support payments to farmers, but the structure and range of payments relevant to Natura 2000 has changed considerably.

Under the new legislation[30] Member States are required to introduce area-based payments:

- a **Basic Payment Scheme (BPS)** replacing the Single Payment Scheme (SPS) from 2015 (although Member States using the Single Area Payment Scheme (SAPS) may continue to do so until 2020);
- the payment for farmers observing agricultural practices beneficial for the climate and the environment (**greening payment**)
- an additional **payment for young farmers**.

Member States have the option of offering farmers three other payments:

- an additional payment to farmers in **areas facing natural constraints**; and
- additional **coupled** payments **'where specific types of farming or specific agricultural sectors that are particularly important for economic, social or environmental reasons undergo certain difficulties';** or
- a simplified payment for **small farmers,** instead of other Pillar 1 payments.

All these payments will be area based, except the coupled payments which may be based on defined areas, yields or number of animals. The Member States now using SPS will have to change the 'historic' farm-by-farm payments that were based on subsidies received in a particular reference year to a flat-rate, or flatter, BPS payments per hectare by 2019. This will affect the majority of EU-15 Member States applying SPS today and will inevitably lead to some redistribution of payments between farmers. Payment levels can be set at either the national or regional level, with flexibility to define regions in terms of a range of criteria, including '*agronomic and socio-economic characteristics, their regional agricultural potential, or their institutional or administrative structure*'[31]. Only '*active farmers*' undertaking '*agricultural activity*' will be eligible for Pillar 1 payments, and if they farm

[30] Regulation (EU) No 1307/2013 of 17 December 2013
[31] Article 23 of Regulation (EU) No 1307/2013 of 17 December 2013

'*agricultural areas naturally kept in a state suitable for grazing or cultivation*' as Natura 2000 farmers may do, their eligibility will depend on precisely how Member States choose to define '*minimum activity*' and '*permanent grassland'* within a framework to be provided by the Commission[32].

Changes to Pillar 2 - a new thematic structure for the 2014-2020 RDPs

The changes to Pillar 2 in the legislation relate mainly to the architecture of the Regulation and hence to the structure of the 2014-20 Rural Development Programmes (RDPs). The three axes characterising past rural development policy have been removed and Member States can use combinations of measures to deliver six EAFRD priorities, reflecting the common thematic objectives identified for the five ESI Funds, including EAFRD. These priorities are:

1. '*Fostering knowledge transfer and innovation in agriculture, forestry and rural areas;*
2. *Enhancing farm viability and competitiveness of all types of agriculture in all regions and promoting innovative farm technologies and sustainable management of forests;*
3. *Promoting food chain organisation, including processing and marketing of agricultural products, animal welfare and risk management in;*
4. *Restoring, preserving and enhancing ecosystems related to agriculture and forestry;*
5. *Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors; and*
6. *Promoting social inclusion, poverty reduction and economic development in rural areas.*'

Each priority is further defined by several focus areas, and the Regulation offers an indicative list of relevant RDP measures for the six priorities. There are three focus areas for the agricultural and forest ecosystems priority, one of which is '*restoring, preserving and enhancing biodiversity, including in Natura 2000 areas, and in areas facing natural or other specific constraints, and high nature value farming, as well as the state of European landscapes*'[33]. Furthermore, each programme has to contribute to three cross-cutting objectives of innovation, environment and climate change mitigation and adaptation.

Member States can create thematic sub-programmes to address specific needs in their national or regional contexts, effectively creating 'mini-RDPs' within the main programme. Thematic sub-programmes can be implemented by local authorities, regional development bodies or NGOs and can offer beneficiaries higher rates of payment. The needs of young farmers, small farms, mountain areas, short supply chains and climate change mitigation and adaptation and biodiversity are identified as some of the potential topics for thematic sub-programmes[34].

Other changes relevant to Natura 2000 farmers include recognition of the environmental and climatic benefits of collaborative action in particular at the landscape scale, and of co-operation along the supply chain. There is also a strong emphasis on innovation, the

[32] Articles 4 and 9 of Regulation (EU) No 1307/2013 of 17 December 2013
[33] Article 5 and Annex VI of Regulation (EU) No 1305/2013 of 17 December 2013
[34] Articles 7, 8 and 66 and Annex IV of Regulation (EU) No 1305/2013 of 17 December 2013

environment , *including 'the specific needs of Natura 2000 areas*'[35] and climate change mitigation and adaptation. The scope of the Natura 2000 compensation measure is broadened to cover farmland and forest land in other nature protection areas with environmental restrictions that contribute to improving habitat connectivity (Article 10 of the Habitats Directive).

Potential synergies between Pillar 1 and Pillar 2 support for Natura 2000 farmers

The two Pillars of the CAP have different tools and at farm level the potential synergies between them can be used to support both Natura 2000 farming systems and conservation management practices; the new legislation emphasises the need to take advantage of such synergies[36]. 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).

Pillar 2 has of course been the main source of EU funding for *specific* nature conservation management of farmland, but the extent and targeting of support for Natura 2000 farmland varies greatly between Member States. In the 2014-2020 period such funding will increasingly have to compete with many other rural development priorities at Member State or regional level, and it is more important than ever to build coherent packages of Natura 2000 farmland support using funds from *both* Pillars of the CAP to ensure that sufficient support is provided to low-intensity Natura 2000 and HNV farming systems.

5.3 The environmental reference level for CAP payments

Cross-compliance and other requirements

The concept of the 'reference level' as applied to farm payments under both Pillars of the CAP is a cost allocation mechanism to define the dividing line between the level of environmental provision that farmers are expected to deliver at their own expense, and an enhanced level of environmental management for which farmers may be paid to deliver, for example through agri-environment schemes.

The environmental reference level for all area-based CAP payments includes:

- relevant Statutory Management Requirements (SMR), for example elements of the Habitats or Birds Directives relating to farm level protection of Natura 2000 habitats and species;
- standards for Good Agricultural and Environmental Condition (GAEC) as defined by Member States within a common EU framework;
- other national or regional regulations that apply at farm level, whether or not the farmer receives CAP payments.

Additionally, for agri-environment-climate and other area-based EAFRD payments, the reference level includes:

[35] Article 8 (1) c (iv) of Regulation (EU) No 1305/2013 of 17 December 2013

[36] Common Strategic Framework paragraph 4.2 (1) Annex I of Regulation (EU) No 1303/2013 of 17 December 2013

- the relevant criteria established under 'agricultural activity' (Article 4(1)(c) and 4(2) of Regulation (EU) No 1307/2013).
- (for recipients of agri-environment-climate and organic farming payments only) requirements on the use of fertilisers and plant protection products which Member States must define in the RDP.

The greening requirements for Pillar 1 direct payments are relevant for calculating agri-environment-climate premia because it is necessary to exclude double funding of agri-environment-climate commitments which are supported under agri-environment payments and which correspond in their nature to the practices referred to in Article 43 of Regulation (EU) No 1307/2013 (agricultural practices beneficial for the climate and the environment) which are subject to greening payments under Pillar 1.

Member States must define their own verifiable GAEC standards for farmland, within a new common framework, and in doing so they must take into account '*the specific characteristics of the areas concerned, including soil and climatic condition, existing farming systems, land use, crop rotation, farming practices and farm structures*'[37].

The CAP reform legislation has revised the cross-compliance framework, as shown in Table 5.2. The GAEC standards and SMR are now organised in three groups comprising environment, climate change, good agricultural condition of land; public, animal and plant health; and animal welfare. The SMR based on the Habitats and Birds Directives remain broadly the same but the GAEC framework has changed considerably. The optional GAEC standards have been removed, including '*minimum stocking rates and/or appropriate regimes*' and the problematic '*avoiding the encroachment of unwanted vegetation*', which had been implemented by some Member States in a way that damaged Natura 2000 habitats. The latter is replaced by relevant maintenance and minimum activity criteria established by Member States (under points (c)(ii) and (c)(iii) of Article 4(1) of Regulation (EU) No 1307/2013. In addition, a new option in GAEC 7 to introduce 'measures for avoiding invasive plant species' is available for Member States to implement if need be. To cover the transition to implementation of the Pillar 1 'greening' payment, during 2015 and 2016 the existing rules on maintenance of the area of permanent pasture[38] will still be part of cross-compliance.

[37] Article 94 of Regulation (EU) No 1306/2013 of 17 December 2013
[38] Under Regulation (EC) 1120/2009

Table 5.2 Cross-compliance requirements from 2015 for environment, climate change, good agricultural condition of land

Source: Regulation (EU) No 1306/2013 of 17 December 2013 Annex II (OJ L347, 20.12.2013)

Area	Main issue	Requirements and standards		
Environ-ment, climate change, good agricultural condition of land	Water	SMR 1	Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (OJ L375, 31.12.1991, p.1)	Articles 4 and 5
		GAEC 1	Establishment of buffer strips along water courses ([1])	
		GAEC 2	Where use of water for irrigation is subject to authorisation, compliance with authorisation procedures	
		GAEC 3	Protection of ground water against pollution: prohibition of direct discharge into groundwater and measures to prevent indirect pollution of groundwater through discharge on the ground and percolation through the soil of dangerous substances, as listed in the Annex to the Directive 80/68/EEC in its version in force on the last day of its validity, as far as it relates to agricultural activity	
	Soil and carbon stock	GAEC 4	Minimum soil cover	
		GAEC 5	Minimum land management reflecting site specific conditions to limit erosion	
		GAEC 6	Maintenance of soil organic matter level through appropriate practices including ban on burning arable stubble, except for plant health reasons ([2])	
	Biodiversity	SMR 2	Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (OJ L20, 26.1.2010, p.7)	Article 3(1), Article 3(2)(b), Article 4(1), (2) and (4)
		SMR 3	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna (OJ L206, 22.7.1992, p.7)	Article 6(1) and (2)
	Landscape, minimum level of maintenanc e	GAEC 7	Retention of landscape features, including where appropriate, hedges, ponds, ditches, trees in line, in group or isolated, field margins and terraces, and including a ban on cutting hedges and trees during the bird breeding and rearing season and, as an option, measures for avoiding invasive plant species	

(1) The GAEC buffer strips must respect, both within and outside vulnerable zones designated pursuant to Article 3(2) of Directive 91/676/EEC, at least the requirements relating to the conditions for land application of fertiliser near water courses, referred to in point A.4 of Annex II to Directive 91/676/EEC to be applied in accordance with the action programmes of Member States established under Article 5(4) of Directive 91/676/EEC.

(2) The requirement can be limited to a general ban on burning arable stubble, but a Member State may decide to prescribe further requirements.

Effect of the 'green' payment under Pillar 1

Member States (or regions) must allocate 30 per cent of their budget for Pillar 1 direct payments to the new 'greening' payment for agricultural practices beneficial for the climate and the environment.[39] Almost all farmers entitled to BPS or SAPS payments have to comply with the three greening measures (or specified equivalent practices). The exceptions are: certified organic farmers who will receive the payment automatically; farmers with holdings fully or partly in Natura 2000 areas who have to comply only to the extent that the 'greening' practices are compatible with the objectives of the Natura 2000 Directives; and recipients of the Small Farmers payment, who are exempted from the greening requirements.

The greatest impact on land management will probably be on farms with substantial areas of arable crops and fallow, but comparatively small areas under grass or herbaceous fodder crops. The greening requirements also offer Member States an opportunity to strengthen protection of valuable pastoral habitats from ploughing up or conversion.

The three greening requirements are:

- **Crop Diversification**[40]: farms with more than 10 ha of arable land (including fallow) must grow at least two different crops, with the main crop covering no more than 75 per cent of the arable land; where they have more than 30 ha of arable land three different crops must be grown. These requirements only apply to grassland or mixed farms that have more than 30 ha of arable crops (including fallow but excluding grass and herbaceous forage crops), and other exemptions are provided as well.
- **Permanent Grassland**[41]**:**
  - Member States must ensure that overall the ratio of permanent grassland to the total agricultural area (compared to a specified, earlier reference year) does not fall by more than 5 per cent, and they can choose to apply this requirement nationally or regionally. They can also set this obligation at the level of individual farms. Permanent grassland that has been afforested does not count as a loss in this calculation.
  - Within Natura 2000 sites Member States must designate permanent grasslands that are '*environmentally sensitive'* (see below for new definition of 'permanent grassland') '*including in peat and wetlands'*, which need strict protection in order to meet the Natura objectives. For farmers in these areas the 'greening' requirement is no conversion or ploughing of this land.
  - Outside Natura 2000 sites Member States can choose to designate '*further sensitive areas*' of '*environmentally valuable*' permanent grasslands, including those on carbon rich soils, where the same level of protection would apply under the greening requirements.

[39] Articles 43 to 47 of Regulation (EU) No 1307/2013 of 17 December 2013
[40] Article 44 of Regulation (EU) No 1307/2013 of 17 December 2013
[41] Article 45 of Regulation (EU) No 1307/2013 of 17 December 2013

- **Ecological Focus Areas**[42]; farmers with more than 15 ha of arable land (with some other exemptions) must ensure that an area equivalent to 5 per cent of their arable area is '*ecological focus area*'. These areas can be fallow, terraces, landscape features, buffer strips, agro-forestry, forest edges, short rotation coppice and areas afforested with RDP or equivalent support; also catch crops, green cover and nitrogen-fixing crops. Where farmers have to create ecological focus areas this could potentially mean that more habitat is available for Natura 2000 species on arable farmland outside Natura 2000 sites, and the habitat value and permeability of intensive arable areas is improved (Dänhardt et al, 2010; Gilbert-Norton et al, 2010; Smith et al, 2010). However, the extent to which additional good quality habitat is actually 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 distributed at the local and landscape scale (Allen et al, 2012a).

For Natura 2000 and HNV farmland the most significant impact of the Pillar 1 greening payment is the effect of raising the baseline for agri-environment-climate payment calculations to ensure that they do not overlap with the greening requirements in Pillar 1, and the additional level of basic protection for pastoral habitats outside Natura 2000 sites, if Member States choose to use their new designation powers.

5.4 A new definition of permanent grassland and permanent pasture

In the current legislation permanent pasture is defined as '*land used to grow grasses or other herbaceous forage naturally (self-seeded) or through cultivation (sown) and that has not been included in the crop rotation of the holding for five years or longe*r'. This caused some confusion about the eligibility of land managed for nature protection for Pillar 1 payments, which was tested in the European Court of justice in2010[43]. The new legislation offers the possibility to extend significantly the definition of permanent grassland which is used for the purposes of eligibility for CAP payments, but the key decisions on exactly which pastoral habitats and land will be included are entirely the responsibility of the Member States, who may decide not to use the extended definition.

From 2015 the basic definition of permanent grassland (including permanent pasture) remains '*land used to grow grasses or other herbaceous forage naturally (self-seeded) or through cultivation (sown) and that has not been included in the crop rotation of the holding for five years or longe*r' but now this also '*may include other species such as shrubs and/or trees which can be grazed provided that the grasses and other herbaceous forage remain predominant*'. Furthermore, Member States can choose to use an extended definition and also include *'land which can be grazed and which forms part of established local practices where grasses and other herbaceous forage are traditionally not predominant in grazing areas'*. The Commission will define the criteria to determine the predominance of grasses and other herbaceous forage and the criteria to determine the 'established local practices'.

[42] Article 46 of Regulation (EU) No 1307/2013 of 17 December 2013

[43] European Court of Justice Decision in Case (C-61/09).
http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62009J0061:EN:HTML

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). The new permanent grassland definitions, together with decisions on allocation of Pillar 1 payment entitlements, could be used by Member States to ensure that such habitats qualify for CAP support. The extended definition also offers the possibility of protecting important habitats under the greening payments.

These are potentially very significant and welcome improvements but what difference they actually make on the ground will depend on the willingness of Member States to adopt the extended definition, which in some cases could increase significantly the total area of land eligible for payments from within their allocated direct payments budget.

5.5 Eligibility of Natura 2000 farmland for CAP payments

It is possible for Natura 2000 farmland to be eligible for CAP payments under both Pillar 1 and Pillar 2 but in a number of Member States substantial areas of Natura 2000 farmed habitat were deemed ineligible for Pillar 1 direct payments in the 2007-2013 period. Eligibility issues have included the presence of trees, shrubs and scrub on pastureland, farm or parcel size, land tenure, out-dated land registration records, and difficulties with GAEC standards that Member States have designed for more intensive farming systems. These problems often relate to characteristic features of Natura 2000 farmland which are an essential part of their biodiversity value, but do not fit within the EU eligibility rules or within the Member State's implementation of these rules.

The Commission guidance recommended as a general rule that land with more than 50 trees per ha[44] should be considered ineligible. Although Member States could also apply as an alternative a pro rata system, the rule caused problems in some areas. New rules and guidelines will be issued as part of the CAP reform legislation[45].

In many Member States, large areas of extensive grazing land are classified as forestry land rather than agricultural 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, 2011a).

The examples in Box 5.1 show how in the past some Member States have excluded key Natura 2000 farmland areas from CAP support, and how others have used the scope of the EU rules to ensure that Natura 2000 habitats and farmers are eligible.

Nevertheless, many of the features and areas that some Member States have excluded from the eligible area for Pillar 1 direct payments were considered eligible for agri-environment payments under Pillar 2. Some agri-environment schemes have been put in place largely as a reaction to the ineligibility of such habitats for direct payments under Pillar 1, for example

[44] 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
[45] Article 76 (2) (c) of Regulation (EU) No 1306/2013 of 17 December 2013

the schemes designed for wooded semi-natural habitats in Estonia and Sweden, with an important element targeting Natura 2000 sites (King, 2010). It would be preferable if such eligibility issues could be resolved. In some cases this may be possible in future with the extended definition of 'permanent grassland' and the forthcoming rules on eligibility of landscape features[46].

In some cases Natura 2000 farms have been excluded from support simply because they are smaller than the minimum size set by the national authorities. The legislation has indicative minimum size thresholds for Pillar 1 direct payments (either less than €100 per year or less than one hectare land) but Member States can choose to adjust this threshold within defined limits '*to take account of the structure of their agricultural economies*'. For example, the minimum eligible area per holding could be as low as 0.1ha in Malta; 0.3ha in Cyprus, Hungary, Portugal, Romania and Slovenia; 0.4ha in Greece and 0.5ha in Bulgaria, Italy and Poland[47].

Member States could use the opportunity to set lower thresholds to ensure that small Natura 2000 farms are eligible for Pillar 1 support.

BOX 5.1. Member States implementation of CAP Pillar 1 eligibility rules in 2007-2013

In the 2007-2013 programming period there were major differences between Member States in the interpretation of Commission guidance on eligibility of land for CAP payments and in the definition GAEC standards, particularly for pastures with shrubs and trees. Some Member States took a broad approach favourable to HNV and Natura 2000 farmland by including large areas of actively-farmed pastures with scrub and trees in their eligible areas for Pillar 1 payments. The UK included most areas of heathland in its LPIS and considered it eligible for Pillar 1 payments so long as the vegetation is not too thick for grazing animals to penetrate (DVL and NABU, 2009). France explicitly allowed 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, 2011b). Spain created 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, 2011a). In marked contrast, other Member States did not use all possibilities within the legal framework to add in the LPIS large areas of extensive pastures and provide Pillar 1 payments, thereby foregoing possibilities to positively impact on both biodiversity and the viability of these important farming systems.

The GAEC standard to prevent the 'encroachment of unwanted vegetation' was in some places defined in a way that provided an incentive to clear pastures of patches of shrubs or scrub (Birdlife International, 2009; Cumulus Consultants, 2011; Hart and Baldock, 2011; King, 2010). In 2009 the managing authority in Bulgaria revealed that 400,836 ha of permanent grasslands previously identified as HNV had failed to meet the requirements for Pillar 1 payments, mainly because their definition of the GAEC standard for protection of permanent pastures required 'permanent pastures or meadows to be cleared of unwanted bushes'. Farmers started cleaning shrubs and bushes, leading to the destruction of some valuable and protected habitats.

[46] Article 76 (2) (c) of Regulation (EU) No 1306/2013 of 17 December 2013
[47] Article 10 and Annex IV of Regulation (EU) No 1307/2013 of 17 December 2013

This GAEC requirement, combined with the problem of abandoned land (mainly permanent pasture but also arable land), led to large areas being excluded from both SAPS payments and area-based payments under Axis 2 (Keenleyside et al, 2012).

In Germany, various grassland and heath areas under nature conservation management have been ineligible for Pillar 1 payments because they are not considered to be under (productive) agricultural management (DVL & NABU, 2009), although this may change as a result of a ruling by the European Court of Justice. 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) have not been registered for direct payments (Nori and Gemini, 2011).

Rules on including landscape features such as shrubs, trees or hedges as part of the area eligible for direct payments have also been implemented differently among Member States (DVL & NABU, 2009; Oppermann, 2009). For example, features that are more than 4m wide (or more than 2m wide if internal to the parcel) have generally been excluded from the eligible area[48], although Member States had the option of allowing landscape features, such as hedges of any width, to be counted in a farm's eligible area if they informed the Commission that such features are explicitly treated as 'landscape features' which a farmer must retain under GAEC. Ireland did this, but many other Member States did not (Beaufoy et al, 2011b), for example the UK excluded environmental features such as hedges from the eligible area. If landscape elements more than 0.1 ha in area were part of the eligible area they were supposed to be mapped and digitalized in the Land Parcel Identification System (LPIS) for control purposes[49]. 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 may have changed by the time of an audit.

5.6 The importance of supporting the farming system not just the land management

Many Natura 2000 farming systems are under threat. These farmers, who deliver the essential management of key habitats and species, often farm under difficult circumstances using labour-intensive systems on marginal land. They are extremely vulnerable to economic pressures to abandon their traditional farming systems and in some cases to cease production altogether.

Extensive livestock systems are under particular pressure and some grassland is now mown rather than grazed, which can have detrimental impacts on the biodiversity of habitat types that traditionally have been 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. The alternative decision to move to more intensive production systems may be equally damaging if housed livestock no longer use summer pastures, and hay meadows are converted to silage production.

If the Natura 2000 farming system as a whole is uneconomic, simply providing support for the management of specific habitats and features may not be sufficient to ensure that these practices continue. In cases where the Natura 2000 land is only part of the farm holding (for

[48] 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

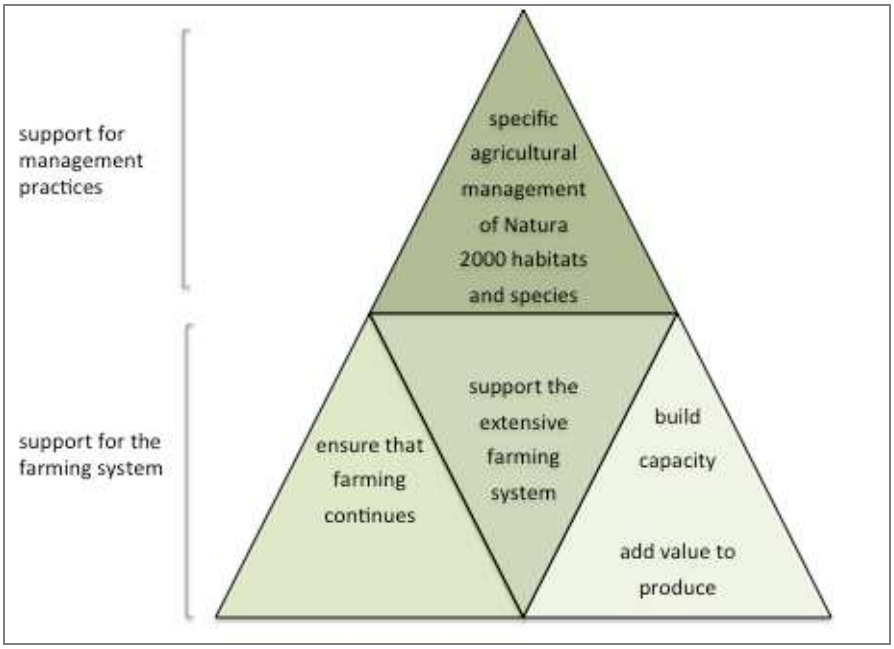
[49] http://marswiki.jrc.ec.europa.eu/wikicap/index.php/Area_measurement

example dairy farms with alpine summer pastures) it will be necessary to consider the farm as a whole, including any land outside Natura 2000.

It is therefore important to build an integrated package of support for Natura 2000 farmers that first ensures the economic viability of the extensive farming system on which the beneficial management depends, and secondly addresses the specific management practices needed for the conservation of the key habitats and species.

The first priority is to address the key threats of abandonment and intensification by ensuring that the farmer can continue (or resume) farming the land, and that the extensive farming system survives. Economic and social viability can then be improved with targeted support for capacity building and adding value to farm products. When the underlying support for the farming system is in place then the support for the specific Natura 2000 habitat and species management practices will complete the package, as illustrated in Figure 5.1. This integrated package of support can be built up using a wide range of measures from both Pillars of the CAP, as explained in sections 5.7 to 5.12.

Figure 5.1. Building an integrated package of support for Natura 2000 farming systems



5.7 CAP support to ensure economic viability of extensive Natura 2000 farming systems

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). In many Member States these payments play an important role in maintaining agriculture on land that would otherwise have been abandoned. Avoiding abandonment in these areas is particularly important, because these farmers 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.

The first critical step in ensuring that farming continues in Natura 2000 areas is eligibility for Pillar 1 payments. The particular characteristics of Natura 2000 farming systems should be taken into account, for example by using the extended definition of 'permanent grassland', when defining the criteria and the minimum activity as required under points (ii) and (ii) of Article 4(1)(c) of Regulation (EU) 1307/2013, and when setting up rules on landscape features and minimum farm size. Equally important is ensuring that Natura 2000 farmers have 'payment entitlements', especially if they have never been able to claim direct payments before. Member States can decide (before 1 August 2014) to allocate new payment entitlements to active farmers who were unable to claim Pillar 1 payments (for example, in Member States applying SAPS, because they only had land that did not meet the requirement for 'good agricultural condition' at the time payment entitlements for the current schemes were allocated in 2003). MS that currently apply the SPS can also provide entitlements to farmers who never held entitlements and who provide evidence that they are genuine farmers[50]. This is an important opportunity to bring currently unsupported Natura 2000 farmland back within the scope of CAP direct payments.

When eligibility of the land and the farmer has been assured there are several payments from both Pillars of the CAP which can be used, often in combination, to underpin the economic viability of these farms, including the:

- Basic Payment Scheme and Single Area Payment Scheme and the associated greening requirements (Pillar 1) OR the
- Small Farmers Scheme (Pillar 1)
- Payments for areas with natural constraints (Pillar 1 and Pillar 2)
- Voluntary coupled support (Pillar 1)
- Payments for organic farming (Pillar 2)

Basic Payment Scheme and Single Area Payment Scheme (Pillar 1)

The Basic Payment Scheme (BPS) is the farm income support payment, decoupled from agricultural production, that replaces the current Single Payment Scheme (SPS) in 2015, but Member States using the Single Area Payment Scheme (SAPS) can continue to do so until 2020. The BPS will be paid at a standard rate per hectare, at the latest in 2019, but Member States have the flexibility to take historical factors into account provided that no rate per hectare has a value lower than 60% of the average. Furthermore, they may set different rates for different regions if these are defined objectively, for example by '*agronomic and economic characteristics and their regional agricultural potential, or their institutional or administrative structure*'[51].

Small Farmers Scheme (Pillar 1)

As an alternative, Member States can choose to set up a Small Farmers Scheme which offers a simplified direct payment of between €500[52] and €1250 per farm per year, which small farmers may choose instead of all other Pillar 1 payments[53]. It is aimed at simplifying the

[50] Article 24(1) Regulation (EU) No 1307/2013 of 17 December 2013
[51] Article 22(5) of Regulation (EU) No 1307/2013 of 17 December 2013
[52] The lower limit can be €200 in Cyrpus, Croatia, and Slovenia, and €50 in Malta
[53] Article 61 to 65 of Regulation (EU) No 1307/2013 of 17 December 2013

administrative burden of paying income support to the large number of very small farms in the EU, and if used could help small semi-subsistence Natura 2000 farms to access support for the first time. It is important to note that there will only be one opportunity for farmers to opt for this payment, shortly after the legislation comes into force, but Member States can move farmers already receiving low direct payments into the scheme automatically.

Greening payments (Pillar 1)

Farmers in Natura 2000 areas will only have to comply with the greening requirements that are compatible with the Natura 2000 objectives, and recipients of the Small Farmers Scheme will be exempted from the greening obligations. In reality most Natura 2000 farms are likely to be compliant already (for details see 5.3 above) but it is essential before the payments begin that the Member States define precisely what (if anything) the farmers of Natura 2000 farmland will be required to do. Equally important is the need to make sure that the farmers understand this, to avoid any possibility of them damaging Natura 2000 habitats (for example by converting extensively managed arable land to EFAs) because they believed it was a condition of payment).

The new requirements for Member States to designate within Natura 2000 sites valuable areas of grazed habitats offer extra protection for this land, which farmers would not be able to plough or convert (unless they were willing to risk loss of some or all of their direct payments). Similar designations can be used outside Natura 2000 sites too, if Member States wish.

Payments for areas with natural constraints (Pillar 1 and Pillar 2)

The so-called LFA (or natural handicap) payments have long provided crucial support for the maintenance of extensive livestock grazing systems, which are of fundamental importance for many key agricultural habitats and species. 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. 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) (Cooper et al, 2006). 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 this 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). These payments are mostly without specific management requirements, and farmers have come to regard the LFA Pillar 2 payment as a form of CAP income support, although in the 2007-13 period some Member States replaced the LFA measure with more targeted agri-environment schemes (for example, in England and Wales).

Under the new Regulation, Areas with Natural Constraints (ANC) will be defined using new, biophysical criteria[54], which will result in some changes to current LFA boundaries (transitional Pillar 2 payments will be available for LFA land which does not qualify as ANC).

[54] Annex III of Regulation (EU) No 1305/2013 of 17 December 2013

Member States will have the option of offering farmers two separate ANC payments: an additional Pillar 1 income support payment on top of the BPS and greening payments, and an up-dated version of the more familiar compensation payment under Pillar 2 (which was originally linked to numbers of livestock or area of crops, but is now paid on a per hectare basis).

Member States will be able to designate three different types of ANC area[55]:

a) *Mountain areas* where the existence of very difficult climatic conditions substantially shortens 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;

b) *Other areas* as *facing significant natural constraints* can be defined if at least 66% of the UAA meets the thresholds of one or more of a list of climate, soil and terrain criteria constraining production but Member States must exclude land within these areas where agricultural investment or economic activity has overcome the constraints;

c) *other areas affected by specific constraints* and if it is necessary for land management to be continued in order to conserve or improve the environment, to maintain the countryside, to preserve the tourist potential, or protect the coastline. These areas must not exceed 10 per cent of the Member States territory.

Care will be required to ensure that the significant new requirement to exclude agriculturally improved land from type b) is not used in a way that excludes certain Natura 2000 farmland (for example hay meadows).

There is no obligation for Member States to set up ANC payments under either Pillar but if they do so, Natura 2000 farmers with land in the new ANC areas will be able to claim the Pillar 2 ANC compensation payments and also Pillar I ANC direct support (unless they opted for the small farmers scheme). The Pillar 1 ANC payments can be allocated no more than 5 per cent of the national budget ceiling for Pillar 1, and do not have to be made available in all the ANC areas of a Member State[56].

The Pillar 2 ANC payments will be within the range €25 to €250 (or €450 in mountain areas) per ha per year, based the income foregone and costs incurred as a result of the natural handicap, compared to farmland with no handicap. This comparison requirement is a significant change to the payment calculation which may lead to increased payment rates on some Natura 2000 and other HNV land, compared to the current period, but this will depend very much on how the comparison is made and what costs are taken into account. In situations where there is a risk of abandonment of Natura 2000 farmland it is important

[55] Article 32 and Annex III of Regulation (EU) No 1305/2013 of 17 December 2013
[56] Articles 48 and 49 of Regulation (EU) No 1307/2013 of 17 December 2013

to take the full cost of farming the land into account (Barnes et al, 2011). These ANC payments would be degressive for farms above a certain size[57].

Voluntary coupled support (Pillar 1)

The new Pillar 1 direct payments include an instrument (similar to the previous specific support under Article 68(1)(b) of Reg. 73/2009) that enables Member States to use 8% (or in some cases more), of their annual national budget ceiling for direct payments to grant coupled support to a limited list of sectors and productions, to 'sectors or regions where *specific types of farming or specific agricultural sectors that are particularly important for economic, social or environmental reasons undergo certain difficulties*'[58]. Support measures to be implemented by Member States must be notified to the Commission.

These types of payment can be a useful targeted support for economically vulnerable types of livestock farming, particularly in upland and mountain areas, although in the past 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, with 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 the scheme for extensive livestock in the Burren Natura 2000 area in Ireland (see case study in annex E); for local breeds and extensive livestock in Portugal, notably on HNV meadows and *dehesas*; and for extensive livestock and permanent pasture in Denmark (Hart et al, 2010).

Payments for organic farming (Pillar 1 greening and Pillar 2)

Many extensive Natura 2000 farming systems would require relatively few changes to meet the standards of organic production. Certified organic farms qualify automatically for the greening payments in Pillar 1. In Member States that have large proportions of their permanent pasture farmed under near-organic systems, Pillar 2 support for conversion to or maintenance of organic farming practices could be an important additional source of income for Natura 2000 farmers[59], and also potentially for extensive sheep and goat grazing systems in Mediterranean countries such as Greece, Italy and Portugal, and for extensive arable systems on marginal land (eg. see case study of cereal production in Spain).

In the new legislation, support for conversion to and maintenance of organic farming systems is separate from the agri-environment-climate measure, but is similar in structure, with five to seven year annual payments[60]. There is provision to pay for farmers' transaction costs by adding 20 per cent to the initial payment calculation (or 30 per cent where groups of farmers apply). Maximum payment rates range from €450 to €600 per hectare, depending on the farming system.

[57] Article 31 of Regulation (EU) No 1305/2013 of 17 December 2013

[58] Articles 52 – 55 of Regulation (EU) No 1307/2013 of 17 December 2013. The 8% may be increased by derogation up to 13%, plus 2% for support for protein crops, and under certain conditions may be more than 13% with Commission approval

[59] These include the Czech Republic (over 25%), Greece, Latvia and Slovakia (all over 15-16%), and Austria and Portugal (over 10%) (European Commision, 2010a)

[60] Article 29 of Regulation (EU) No 1305/2013 of 17 December 2013

5.8 CAP support for building the capacity of the Natura 2000 farms

Without support many Natura 2000 farms will simply not survive, and the long-term economic and environmental viability of Natura 2000 farming systems depends on building the administrative and environmental capacity of the farmer and the economic capacity of the farm:

- to take advantage of the opportunities offered by publicly funded support the farmer must first understand the Natura 2000 objectives and the vital role that his/her farming plays in achieving these; and secondly the farmer must have the knowledge and administrative capacity to apply for these payments and services, to understand what is required and to maintain the necessary records. It is particularly important that farmers understand that the objectives of support are environmental, not agricultural intensification.
- many Natura 2000 farmers would be able to reduce costs and improve income if they were able to use labour saving technology, access markets for Natura 2000 farm produce and meet quality standards. Building the capacity of the farm business and farm workers in this way can secure farm and family income without compromising environmental services.

Public support for capacity building comes from both Pillars of the CAP, but it is essential that this support is tailored to the specific needs of Natura 2000 farmers and farming systems in meeting the environmental objectives. The range of capacity building support includes:

- farm advisory services (Pillars 1 and 2)
- knowledge transfer and information (Pillar 2)
- Investment in support (Pillar 2)
- farm and business development (Pillar 2)
- Income support and other payments for young farmers (Pillar1 and Pillar 2)
- raising environmental awareness among Natura 2000 land farmers (Pillar 2)

Farm advisory services (Pillar 1 and Pillar 2)

The provision of advice, support and training for farmers is crucial for the survival of Natura 2000 farming systems and the successful management of key habitats and species.

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, 2010a). Small farmers are not being properly reached by advisory services and cross-compliance advisers often lack training in habitat and species conservation on farmland. There is also a need for effective links between research and cross-compliance implementation (Angileri, 2011). Some farmers have said that the fear of contravening cross-compliance requirements stop them from implementing conservation measures (Goßler, 2009). 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, and assessing and advising on the specific situation of the farmer, not just presenting general information.

Member States are obliged to set up a Farm Advisory System which from 2015 must provide advice to farmers on: cross-compliance (SMR and GAEC); greening requirements; farm level requirements under EU water and pesticide legislation; and RDP measures for farm modernisation, competitiveness building, sectoral integration, innovation, market orientation and promoting entrepreneurship[61]. Member States can choose to offer a much wider range of advice through the Farm Advisory System, particularly on: farm conversion and diversification; risk management and preventive actions; baseline requirements for agri-environment-climate payments; and advice on a list of specific topics relevant to climate change mitigation and adaptation, biodiversity and water[62].

In the past large farms have been the main beneficiaries of the Farm Advisory System and authorities in some Member States have had problems in delivering advice to small farms.

From 2015 Member States can, if they wish, give certain categories of farmers priority access to farm advice, but they must at least give priority to the farmers who have the most limited access to other advisory services, and must ensure that farmers 'have access to advice reflecting the specific situation of their holding'[63].

The scope and requirements for the Farm Advisory System from 2015 offers Member States an opportunity to provide very specific advisory services tailored to the environmental and economic needs of Natura 2000 farmers. However, there is no guarantee that they will do so, or that the advisory needs of Natura 2000 and HNV farmers will be prioritised over the needs of the more intensive farmers.

Provision of the Farm Advisory System is a requirement of Pillar 1, but the funding for Member States to set up advisory services comes from a co-financed RDP measure[64] in Pillar 2. The payments under this measure are made to the providers of advisory services, and there is also financial support for adviser training. Effectiveness of the Farm Advisory System will depend on the quality and expertise of those providing advice and how they engage and communicate with land managers. Advisors also 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. Care is required to ensure that those providing the advice have the necessary technical capacity and expertise to do so, especially for Natura 2000 farmland, so this could be an important source of funding for both training advisers and providing a service for farmers. Member States have often provided advice on agri-environment schemes to farmers through a separate organisation or private contractors, but these services can also be provided by locally-based organisations such as NGOs and farmers' associations and often play a critical role in bridging the gap between small farmers and advisory services, as illustrated by the examples in Box 5.2.

[61] Articles 12 – 15 of Regulation (EU) No 1306/2013 of 17 December 2013
[62] Annex I of Regulation (EU) No 1306/2013 of 17 December 2013
[63] Article 14 of Regulation (EU) No 1306/2013 of 17 December 2013
[64] Article 15 of Regulation (EU) No 1305/2013 of 17 December 2013

Box 5.2. Examples of Farm Advisory Services for farmers who manage Natura 2000 habitats and species

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.

In **Scotland (UK)** the Strathspey Wetlands and Waders Initiative was launched to address the problem of sharply declining local populations of waders such as Curlew (*Numenius arquata*) and Redshank (*Tringa tetanus*) in the semi-natural floodplain of the River Spey, where numbers of breeding birds had fallen by 42 per cent between 2000 and 2010. The aim was to foster collaboration between conservationists, agriculturalists and land managers to produce high quality habitat management plans at a landscape scale, and to encourage uptake of agri-environment payments. Landowners and tenant farmers are offered very specific on-the-ground advice about breeding bird habitats, for example required grass height for feeding, the proportion of the pasture where rush (*Juncus*) is allowed to grow and the number of shallow pools needed. There are also other forms of capacity building such as training, research, and networking. Technical advice is provided by a combination of actors including the Scottish Agricultural College, Cairngorm National Park Authority, independent agricultural agents and the Royal Society for the Protection of Birds (RSPB), an environmental NGO. Results collated in February 2012 showed 2,250 hectares of land registered within the Initiative and it is hoped that in time this positive uptake and improved management of the wetlands will reverse the decline in the wader population.

Knowledge transfer and information (Pillar 2)

In addition to the provision of advice, Member States can use this Pillar 2 measure to fund the provision of vocational training and skills training, workshops and coaching, demonstration activities and farm visits and short-term farm management exchanges[65]. Funding can also be provided to train the staff providing the service and to cover the costs to the farmers of attending these events (travel, accommodation, per diem expenses and the cost of replacing the farmer during his/her absence). Training and information exchange can be tailored to support any combination of measures at any degree of detail, with the overall objective of improving land managers' ability to deliver the objectives of Natura 2000.

Workshop activities and demonstrations could help to engage land managers in delivering benefits that are difficult to achieve at a farm scale and require landscape scale

[65] Article 14 of Regulation (EU) No 1305/2013 of 17 December 2013

intervention; for example habitat networks or managing an extensive area of key habitat. On-farm visits and farmer-farmer exchanges have a particularly important role in encouraging farmers to join agri-environment schemes, 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).

This measure has greatest potential where used in conjunction with land management measures where knowledge transfer and information is tailored towards the needs of a specific scheme or project. This could include using RDP funding to support nature conservation organisations, other NGOs and existing farmers who may already deliver advice on a voluntary basis. Funding for environmental awarenss actions for high nature value sites is also available under the measure for basic services and village renewal in rural areas[66].

Investment in physical assets (Pillar 2)

The new legislation groups together in one measure[67] a wide range of investment support, including improving overall performance of the farm, processing, marketing and development of products, infrastructure improvements and non-productive environmental investments (the latter are discussed separately in section 5.10 below). Rates of support can be increased for young farmers, group investments, integrated projects, in some areas of natural constraint (ANC) and investments related to agri-environment-climate and Natura 2000 payments.

Many of these investments could improve the economic viability of extensively managed Natura 2000 farming systems. For example, small dairy units might be retained through the funding of on-site or nearby dairy processing units that generate income from added-value products for local producers. Investments in improving manure storage and water efficiency on farm holdings have the potential to reduce costs and bring 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; European Commission, 2010c). Under Cyprus' past RDP it supported investment in 'land development for livestock farming', including planning, landscaping and infrastructure (water, electricity) for grazing areas. In France, Italy, Spain and the Czech Republic investment support has been explicitly linked with mountain areas and mountain farming activities. However, EAFRD resources have also been spent on investments that can pose environmental risks (Boccaccio et al, 2009).

This measure has the potential to provide important support to maintain existing low-intensity Natura 2000 farming systems, especially when used in combination with tailored diversification and business development measures, for example by improving access to markets. However small and semi-subsistence farmers may not be a priority for investment support and the use of this measure requires overcoming significant challenges, including: the difficulty of individually targeting smaller producers who are not registered; the costs

[66] Article 20 (1)f of Regulation (EU) No 1305/2013 of 17 December 2013
[67] Article 17 of Regulation (EU) No 1305/2013 of 17 December 2013

associated with reaching large numbers of very small holdings, farmers' reluctance to co-operate, and the high age and low level of education of many subsistence farmers (Redman, 2010).

Particular care should be taken to ensure that all investment support provided under this measure for Natura 2000 farms avoids direct or indirect negative environmental impacts.

Farm and business development (Pillar 2)

Farm and business development can be essential for small holdings and semi-subsistence farms, and this proposed measure provides business start-up aid for young farmers, small farms and for diversifying into non-agricultural activities, which could all help to improve farm family income. This measure[68] can also be used to offer recipients of the small farmer payment (described in section 5.7) an extra annual payment until 2020 if they transfer their entire holding and corresponding payment entitlements to another farmer.

Although there is no specific mention of environmental priorities in the legislation this support could, if carefully targeted as part of a package of measures, help maintain the economic viability of Natura 2000 farms and communities in vulnerable areas.

Payments for young farmers (Pillar1 and Pillar 2)

One of the problems for the long-term management of Natura 2000 and other HNV farmland is that many farmers are approaching retirement age and have no successors. An important part of capacity building for many farms is securing future jobs for young people, both as farmers and in the associated processing sector, and young farmers can potentially benefit from several measures on the legislation.

Under the new structure of Pillar 1 direct payments Member States are required to provide young farmers with an extra annual payment for up to five years, alongside their BPS or SAPS payment[69]. The value will be around 25 per cent of their BPS payment and available to young farmers under the age of 40 who are setting up their own farm for the first time (or have done so within the five years before they first apply for the BPS). Member States also have the option of targeting some RDP measures at young farmers, including investment support and specific business start-up aid, and young farmers could find it easier to acquire additional land if Member States choose to offer small farmers an incentive payment to transfer their land and entitlements, as described above.

5.9 CAP and other support for adding value to the produce of Natura 2000 farms

Many farmers on Natura 2000 and HNV grasslands face challenges selling their products, because they are often small producers 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.

[68] Article 19 of Regulation (EU) No 1305/2013 of 17 December 2013
[69] Article 50 of Regulation (EU) No 1307/2013 of 17 December 2013

The range of support for farmers seeking to add value to their produce includes:

- Setting up producer groups (Pillar 2)
- Quality schemes for agricultural products (Pillar 2)
- Labelling and Protected Designation of Origin

Setting up producer groups (Pillar 2)

Support under this measure for setting up producer groups for farm (or forest) products could help Natura 2000 farmers achieve the benefits of economy of scale in marketing environmentally sustainable produce. Specifically aimed at SMEs, this measure[70] provides funding over five years for setting up producer groups for the purpose of adapting production to market requirements, joint marketing, establishing rules on product information, developing business skills and innovation.

Quality schemes for agricultural products (Pillar 2)

The establishment of local and regional markets for good quality natural-based products from Natura 2000 sites can improve farm income and help to maintain traditional extensive farming systems. For example, these systems can offer added value products such as 'green' beef, cheeses, wines, fruit and honey, products from endangered local breeds of livestock or crop varieties and from wild fruits, mushrooms and medicinal plants. Quality local products also stimulate tourism and thereby further boost income for local communities. This measure[71] provides reimbursement for the costs to farmers of participating in quality product certification schemes, including those that guarantee specific farming or production methods. Support is for a maximum of five years.

Labelling and Protected Designation of Origin

Labelling is being successfully used in combination with direct marketing to support extensive farming management of Natura 2000 sites using traditional livestock breeds, as illustrated by the examples in Box 5.3. 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. Establishing trust and a direct relationship between producers and consumers are critical to the success of labelling schemes. Many local labelling schemes also exist, including ones that specifically refer to Natura 2000 areas.

Organic certification can also improve the profitability agricultural products from extensive livestock systems, and organic labels include the EU leaf label and various national or independent IFOAM-associated accreditation schemes and labels[72]. 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,

[70] COM(2011) 627 final/3 Article 28
[71] COM(2011) 627 final/3 Article 17
[72] International Federation of Organic Agriculture Movements http://www.ifoam.org/; http://www.organic-bio.com/en/labels/

Caprino, Casu Marzu, or Halloumi. Other CAP support for organic farming is described in section 5.7 above.

An EU-wide labelling scheme for Protected Designation of Origin (PDO) protects agricultural product names from defined areas (and there are other, less demanding schemes for Protected Geographical Indication (PGI) and Traditional Speciality Guaranteed (TSG) labels[73]). To qualify for the PDO label the product must have qualities and characteristics that are essentially due to its region of production, and it must 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).

Some examples of successful uses of the PDO label to market products from Natura 2000 habitats are shown in Box 5.4. It is important to note however that the PDO label provides no 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 may benefit Natura 2000 farmland management more directly.

[73] *[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 Tatran 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]*

Box 5.3. Examples of successful local labelling schemes supporting Natura 2000 farmland management

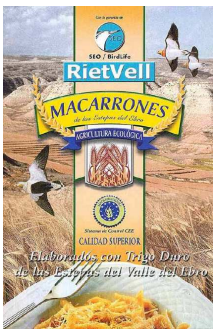
(See also the Luxembourg, Estonian and Spanish case studies in Annex E)

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 succesful 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. Since 2003, *Riet Vell* has sold around 180,000 kg of produced (see case study from Spain for further details).



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-

Box 5.4 Examples of products registered under the EU Protected Designation of Origin label (PDO) that are benefiting Natura 2000 habitats

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.

Sources: (Ecologic, 2006b; Oppermann and Spaar, 2003; Verhulst et al, 2007)

5.10 CAP support for the management of Natura 2000 farmland habitats and species

The earlier sections of this chapter have described potential sources of CAP support to ensure the continuation of low-intensity Natura 2000 farming systems and to build the capacity and income of these farms. This section describes the habitat and species management payments that build upon this foundation to secure the conservation of Natura 2000 areas, starting with sources of finance to help with the preparation of Natura 2000 management plans, because these plans (or similar initiatives) underpin the design of key support measures, including agri-environment-climate payments and non-productive investments. This range of support includes:

- Rural heritage and Natura 2000 management plans (Pillar 2)
- Agri-environment-climate payments (Pillar 2)
- Non-productive investments linked to agri-environment-climate and Natura 2000 (Pillar 2)
- Natura 2000 compensation payments (Pillar 2)

- Animal welfare payments (Pillar 2)
- Prevention of damage to forests from forest fires and restoring agricultural production potential (Pillar 2)

Rural heritage and Natura 2000 management plans (Pillar 2)

The measure[74] for 'Basic services and village renewal in rural areas' includes the possibility to finance the drawing-up and updating of '*protection and management plans relating to Natura 2000 sites and other areas of high natural value*'. Funds are also available for small scale infrastructure and for studies and investments associated with '*the maintenance, restoration and upgrading of the cultural and natural heritage of villages, rural landscapes and high nature value sites, including related socio-economic aspects, as well as environmental awareness actions'*. Most EU subsidies cannot provide the type of funding offered here 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) and helping to avoid the risk of conflicts that have occurred in a number of Member States (Apostolopoulou and Pantis, 2009; Grodzinska-Jurczak and Cent, 2011; Keulartz, 2009; Rauschmayer et al, 2009).

A number of other Member States have used the equivalent measure in their 2007-2013 RDPs. 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. In France this measure has been used to finance Natura 2000 management plans, Natura 2000 contracts with non-farmer or non-forester owners, and awareness raising actions; measures to reduce conflicts with large carnivores have been implemented in France using this measure. Finnish environmental NGOs can now seek funding under this measure for preparing management plans for privately owned Natura 2000 forests, and for example promoting them as ecotourism sites (Figeczky et al, 2010). In Wales this measure was used to support the restoration of floodplain grazing marsh and saltmarsh at the Ynys-hir nature reserve, to improve visitor access and facilities to the site, public understanding of the site and its objectives, and to encourage effective partnership working across the tourism sector (Allen at al. 2012b).

Agri-environment-climate payments (Pillar 2)

The scope of this measure has been widened, as the new name indicates, and it remains the only compulsory measure that Member States must implement in their RDPs (apart from Leader)[75]. The revised aim of these payments is to '*preserve and promote the necessary changes to agricultural practices that make a positive contribution to the environment and climate'*.

The addition of climate to the agri-environment measure signals a commitment to support for agricultural management practices contributing towards climate change adaptation and

[74] Article 20 of Regulation (EU) No 1305/2013 of 17 December 2013
[75] Article 28 of Regulation (EU) No 1305/2013 of 17 December 2013

mitigation, which may become even more significant if the EU adopts rules for accounting for greenhouse gas 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, which could help secure larger scale habitat and species management for Natura 2000 if Member States choose to use these. The effective use of cooperative approaches and group applications to agri-environment schemes can already be seen in the Netherlands (Franks and McGloin 2006).

The measure offers farmers and other land managers annual payments in return for providing, through multi-annual commitments, an environmental management service by following clearly defined management practices. These practices produce a specific environmental benefit above and beyond the reference level of protection already provided by environmental regulation and cross-compliance (see section 5.3 for details of the reference level). Participation is voluntary, and to receive the payment, farmers must sign a management contract with a managing body, usually for five to seven years. The contract specifies the farm level management requirements, often in considerable detail, and may require planning and record keeping (for example of nutrient use and stock movements)[76].

Agri-environment-climate measures may be designed, targeted and delivered at the national, regional or local level. This is one of the most flexible of all CAP support measures, within the rules set in the legislation, and allows Member States the freedom to address environmental priorities in a way that reflects the great variety of local bio-physical, climatic, environmental and agronomic conditions on different farms and in different European regions. 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 (IEEP, 2011).

A number of Member States have specifically tailored agri-environment schemes to the management needs of Natura 2000 sites or farmland with Natura 2000 habitats and species (see Boxes 5.5 and 5.6). For example, Spain has supported 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) have spent little of their EAFRD budget on agri-environment (Boccaccio et al, 2009). Overall, Member States' agri-environment-climate 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.

Land managers who are not primarily farmers, such as private nature conservation bodies, own significant areas of land important for biodiversity. Agri-environment climate support can be paid not just to farmers but also other land managers individually or in groups. In the design of RDPs care should be taken to ensure that support is available to those individuals best placed to carry out the environmental management necessary to deliver environmental priorities. Payments are normally made annually, for 5 to 7 years (longer if necessary to

[76] 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)

achieve or maintain environmental benefits) but can also be in the form of a flat rate or one-off payment to *'renounce commercial use of areas'*. Payment calculations include 20 per cent transaction costs (30 per cent for groups).

Heritage and local breeds of livestock, especially cattle and sheep, are important for management of semi-natural pastures, and this measure providing support for their conservation and utilisation is a useful additional resource for Natura 2000 farmland management. Agri-environment schemes for the conservation of genetic resources have been used in earlier RDPs, for example, in Italy, Portugal, Germany, and Austria to support a significant proportion of their national breeds of cattle (Nitsch, 2006), for example Hungary's grey and flecked cattle, Mangalica pigs and Racka sheep which graze Pannonic salt steppes and marshes; Estonia's native horse and the Estonian cattle breed on coastal meadows; and Slovenia's scheme for 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 has been an important support for extensive grazing of Annex I habitats.

The success of agri-environment-climate schemes depends on a number of factors. Key among these is the provision of environmental land management advice and training for farmers, and sufficient technical and institutional capacity to design schemes and monitor outcomes. Schemes are more successful if they are designed with participation of the farmers themselves, and use farmers' knowledge in the design (for example, see case studies from Germany, Czech Republic, Romania and Estonia in Annex E).

Agri-environment-climate contracts are optional for the farmer, and successful uptake depends on payments rates that reflect the true cost to the farmer and provide sufficient support for the maintenance of economically unviable farming systems. Agri-environment payments are calculated as the additional costs and income foregone as a result of the management requirements, but the way this formula has been 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). A key element of the payment calculation, often ignored by Member States, is an additional payment for the farmer's transaction costs (the time and effort spent in setting up and administering the contract). This can add a further 20 per cent to the payment calculation (30 per cent for group contracts) and make a crucial difference from the farmers point of view, but 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).

Box 5.5. Agri-environment schemes designed for Natura 2000 habitats in 2007-2013

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, 2010; Güthler 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, 2006a; 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.

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

Box 5.6. Successes in tailoring agri-environment measures to Natura 2000 species

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.

Sources: (Poláková et al, 2011; RSPB & Birdlife International, 2011), Liga para a protecção da natureza (LPN) personal communication; Natura 2000 farmland management case studies in Annex E

A few agri-environment schemes aimed at maintaining biodiversity-rich habitats or particular species have been based upon 'payment by results', leaving flexibility for farmers to decide the type of management needed (see for example, the case study from Ireland in Annex E). This can work well for habitat types and species where an easily-monitored result is directly related to the overall status of the habitat, but can carry a higher risk for the farmers, because environmental results can depend on external factors beyond their control (for example weather and migration). It also presents difficulties for national authorities in checking compliance and may give rise to an elevated error rate and reduced payments. To succeed these schemes need to be well designed and not offer too high a level of risk for the farmer.

Non-productive investments linked to agri-environment and Natura 2000 (Pillar 2)

This measure is an essential companion to the agri-environment-climate and Natura 2000 measures, which provide annual payments for specified land management but do not offer

investment support. Non-productive environmental investments, often required 'up-front' at the start of a five-year contract, can be vital to the feasibility of implementing the land management requirements, especially in schemes targeted at HNV farming and Natura 2000 habitats and species.

Now presented as part of a broader investment measure[77], the scope of the previous EAFRD measure has been widened to include investments linked to the '*biodiversity conservation status of species and habitats*' as well as the more familiar '*achievement of agri-environment-climate objectives*' and '*enhancing the public amenity value of a Natura 2000 area or other high nature value systems'*.

The measure 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. 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 has been used widely alongside the agri-environment measure, and many 2007-2013 agri-environment scheme actions were funded through both measures.

The measure provides important funding for habitat restoration work on Natura 2000 land, and investments can include, for example, 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; and restoration of traditional orchards, olive groves, and wood pastures. 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. Investment can also be supported to provide footpaths, bird watching hides and information for visitors to Natura 2000 sites, other protected nature conservation areas and HNV land.

Natura 2000 compensation payments (Pillar 2)

The new Pillar 2 regulation contains some changes to the measure[78] 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 '*other delimited nature protection areas with environmental restrictions applicable to farming or forests which contribute to the implementation of Article 10*' of the Habitats Directive. Such areas must not exceed 5 per cent of the Natura 2000 areas in the territory covered by a given programme.

This measure is rather different from other RDP measures in that it provides compensation payments for restrictions on farmland and forest management imposed by the national legislation implementing the Habitats and Birds Directives (and also the Water Framework Directive). Payments to farmers, foresters or other land managers in Natura 2000 areas 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 land

[77] Article 17 of Regulation (EU) No 1305/2013 of 17 December 2013
[78] Article 30 RD

managers are legally required to carry out to contribute to restoring and maintaining that site's favourable ecological status.

Payments are a standard flat rate per hectare, based on income foregone and/or costs incurred due to limits imposed by the Natura 2000 legislation that go beyond GAEC cross-compliance requirements and minimum activities established in the context of Pillar I. For example these might include limits on stocking density, grazing and mowing dates, or renunciation of drainage and afforestation activities.

This measure could be a very important part of a package of RDP measures aimed at improving the conservation status of key EU farmland habitats. It can be paid at standardised rates to eligible farmers and foresters, has relatively low transaction costs and provides a basis for more targeted agri-environment-climate and non-productive investment payments for example where habitat restoration or specialist management for Annex 1 species is required. The broadening of eligibility to include other nature conservation areas could help to improve habitat connectivity and biodiversity adaptation to climate change, but may be limited by the requirement for 'environmental restrictions' to be in place.

Despite its relative simplicity, the use of the Natura 2000 measure in 2007-2020 was very limited in many Member States, accounting for only 0.5% of 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 targets[79]. 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, 2010c). For example, Poland's 2007-2013 RDP included the option of direct Natura 2000 payments, but its implementation was postponed until the management plans were prepared and the real economic costs and limitations for the management could be calculated (CEEweb, 2011) (and support for Natura 2000 areas was proposed in the context of voluntary agri-environment).

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

Animal welfare payments (Pillar 2)

The animal welfare measure[80] can be used to support farm operations that provide animal welfare beyond mandatory commitments, including water and feed closer to their natural needs; improved housing conditions, such as space allowances, bedding, natural light; outdoor access, etc.

[79] 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

[80] Article 33 of Regulation (EU) No 1305/2013 of 17 December 2013

The measure has been used by some Member States to support free grazing livestock systems, including Natura 2000 grazing. For example, Germany has supported cattle grazing on summer pasture including alpine meadows, and cattle and pigs in loose housing stables (free stall barns) with grazing. The Emilia-Romagna region in Italy has supported Parmigiano-Reggiano cheese producers grazing cattle in mountain areas, and Cataluña (Spain) has provided additional support for organic livestock farmers (Zemekis et al, 2007). The animal welfare measure can also support the use of litter bedding, thus potentially providing a market for the cuttings of Natura 2000 litter meadows.

Prevention of damage to forests from forest fires and restoring agricultural production potential (Pillar 2)

Where Natura 2000 farmland is adjacent to forests (or the farmland that is registered as forest land) there are two measures which could be used to support or reinstate grazing on pastureland that has an important role as firebreaks between or with forests.

The measure for forests[81] provides support for land management operations that maintain protective infrastructure, such as firebreaks. The measure supporting the restoration of agricultural potential after natural disasters or catastrophic events[82] could potentially be used to fund habitat restoration actions after fire, such as the reinstatement of grazing on scrubland prone to wildfire.

5.11 CAP payments for co-operation projects and local partnerships

Local partnerships play a crucial role in implementing Natura 2000 conservation management on the ground. 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. This range of support includes:

- Co-operation (Pillar 2)
- Local partnerships - Leader (Pillar 2)

Co-operation (Pillar 2)

The CAP reform offers Member States an expanded and more flexible measure for co-operative projects[83] 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. Support covers preliminary studies, preparation of management plans, and facilitation and implementation of projects, and the initial seven-year period may be extended in the case of collective environmental projects.

Many environmental priorities require support and management at the wider landscape scale going well beyond the boundaries of individual farms. The effective management of

[81] Article 24 RD
[82] Article 18 of Regulation (EU) No 1305/2013 of 17 December 2013
[83] Article 35 of Regulation (EU) No 1305/2013 of 17 December 2013

Natura 2000 sites and other protected areas requires joint action between different types of land managers (farmers, forest owners, public authorities managing public land) and this measure could be of particular value in environmentally important areas at risk of economic decline to promote environmental management and economic regeneration.

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 to 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. Box 5.7 shows some examples of Natura 2000 co-operation initiatives.

Box 5.7 Successful co-operation initiatives to promote Natura 2000 products and agro-tourism using Leader and integrated CAP funding

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 these alpine pastures, is now a registered trademark and the product is being certified. The LAG is promoting the Almo-region as 'Genussregion' 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.

Sources: (Beaufoy et al, 2011b; European Commission, 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

An example of cooperation at a national level can be seen in the Netherlands where collective contracts were introduced for agri-environment applicants. The purpose of these collective contracts was to improve communication between farmers and raise their environmental awareness to strengthen their capacity to deliver environmental benefits through shared best practice. This approach was also viewed as a more cost effective means of delivering agri-environment objectives. These collective contracts resulted in multiple benefits for biodiversity, in particular for local species such as the hamster and meadow birds and also for landscape features (Allen et al, 2012b).

Local partnerships – the Leader approach (Pillar 2)

The Leader 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 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.

Leader has not been used by Member States as a significant funding source for Natura 2000 management measures, but it can potentially 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. For example, Finland has offered Leader funding to NGOs for management of Natura 2000 meadowland and wetlands not owned by professional farmers (Figeczky 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. 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), and 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, 2009a; Boccaccio et al, 2009)

The Leader approach incorporates locally driven public-private partnerships, capacity building and targeted management and because of this has particular potential to deliver biodiversity benefits. The measure[84] allows Leader Local Action Groups (LAGs) to carry out tasks delegated to them by the Managing Authority, which opens up the possibility of local delivery of targeted environmental measures, possibly linked to thematic sub-programmes. It has been recognised in the current programming period that capacity building is critical for the Leader approach, and this measure now covers the cost of a Leader start-up kit, capacity building, training and networking.

The Leader approach offers a greater degree of local autonomy and flexibility to address both environmental and socio-economic issues than is possible with the conventional 'top-

[84] COM(2011) 627 final/3 Articles 42-45

down' delivery of EAFRD support, Leader funds can be accessed by a wide range of rural stakeholders and therefore offers wider opportunities In future, Leader projects could be more targeted towards the goals of Natura 2000 areas, particularly where Leader is used in combination with other land management measures to deliver environmental priorities. The new thematic structure of EAFRD provides greater encouragement for Leader groups to engage with land management activities, in contrast to the past period where Leader activity was sometimes confined to delivery of Axis 3 measures. These measures can be used to support and improve the socio-economic viability of farming on Natura 2000 areas through locally marketing of high value agricultural products, agro-eco-tourism, or other initiatives such as educational or cultural services. 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. 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 habitat.

Two examples of how Leader and Local Action Groups (LAG) can support the cross-cutting environmental priorities discussed here can be seen in Poland with the 2007-2013programming period. The *Kraina Łęgów Odrzańskich* LAG supported small local projects that maintain and conserve marshland and wetland in protected areas, particularly those that fall within Natura 2000 sites. Local citizens partake in the planning and management. The *Wrzosowa Kraina* LAG maintained and conserved a local site of environmental importance where heather grows. This LAG provides training, school lessons and communication activities to preserve the area. It also supports local tourism by introducing walking paths to the area. Whilst both of these local initiatives provide multiple benefits for the local environments, most LAGs in Poland do not focus on nature protection. A lesson learnt from this programming period in Poland is that Leader must be used more widely for the provision of nature conservation.

5.12 Other EU funds for Natura 2000

LIFE Programme

LIFE is the main EU funding instrument dedicated to the promotion of the environment, and is managed by the European Commission. Though the fund is small, it provides catalyst funding to best practice or demonstration projects that are then expected to find long-term funding from other sources. The 2014-2020 LIFE programme is divided into two sub-programmes, for Environment and for Climate Action[85]. The Environment programme is further subdivided into three priority areas: environment and resource efficiency; nature and biodiversity; and environmental governance and information. LIFE provides mainly action grants to finance projects in response to annual calls, but can also provide operating grants for non-profit-making entities active in the area of environment or climate action.

[85] Regulation (EU) No 1293/2013 of the European Parliament and of the Council of 11 December 2013 on the establishment of a Programme for the Environment and Climate Action (LIFE) and repealing Regulation (EC) No 614/2007

The LIFE programme has played a pivotal role in financing the establishment and initiating management of the Natura 2000 network (COWI, 2009). 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).

The main purpose of LIFE 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 funding. 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 & IEEP, 2009).

LIFE funds require 60% co-funding, but 75% is available for projects for Natura 2000 priority habitats and species. Funding must therefore be found from other sources, and the new LIFE regulation places emphasis on the mobilisation of synergies with other policies and funds, as well as the use of innovative financial instruments. This can include contributions to jointly funded integrated projects operating on a large territorial scale. These projects are designed to implement environmental and climate policy and to better integrate such policy aims into other policy areas. It will be increasingly important to demonstrate the added benefits of LIFE projects: in June 2017, the European Commission will carry out an external and independent mid-term evaluation of LIFE, and from 2018 national allocations will be phased out and projects selected across the EU based on merit.

European Structural Funds: Regional Development Fund, Cohesion Fund and Social Fund

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 overall aim of the funds 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). For the 2014-2020 period, the funds are oriented to the objectives of the Europe 2020 Strategy, the 7th Union Environmental Action Programme and other relevant EU environment and climate strategies and plans, as defined in 11 thematic objectives in the Common Provisions Regulation (see section 5.1).

This makes it necessary to demonstrate the broader benefits of investment in Natura 2000 funding, linking biodiversity conservation activities to benefits for job creation (particularly for small businesses), other social benefits, the low carbon economy, climate change adaptation, or resource efficiency (through ecosystem services and green infrastructure). For example, the European Social Fund priorities of enhancing entrepreneurship and

business creation, and enhancing institutional capacity and efficient public administration, are relevant to Natura 2000 farmland. A wealth of evidence and guidance is available for demonstrating these benefits of Natura 2000 (see further information below).

The **European Regional Development Fund (ERDF)** allows for allocation of funds to biodiversity, particularly under the objective of preserving and protecting the environment and promoting resource efficiency, including through natural heritage, Natura 2000 and green infrastructure[86]. The **European Social Fund (ESF)** can support capacity building aimed at the creation of new job opportunities related to Natura 2000 and small businesses.

The funds also allow for the allocation of funding to transnational, cross-border and interregional cooperation, which can benefit Natura 2000 sites and species, for example the development of eco-tourism regions, and the protection, restoration and management of river basins, coastal zones, marine resources, and wetlands. The European Structural Funds can provide significant funding for Natura 2000 restoration, conservation, management and monitoring actions (European Commission, 2011) (see Box 5.8). The funding could also be used to support eco-tourism, awareness-raising and communication, training and education activities in Natura 2000 areas.

It is important to note that the opportunities identified at the EU level (i.e. opportunities under different Regulations and Articles) are only indicative. Funding priorities for each structural fund are defined in the Operational Programmes at national or regional level, and it is vital that Natura 2000 funding priorities are properly established in these programmes to ensure that the money is available. Each Operational Programme must refer to that Member State's Prioritized Action Framework for Natura 2000. Guidance is available on how to ensure that Natura 2000 priorities are properly incorporated into Operational Programmes (see further information below).

In 2007-2020 the majority of regions and Member States included biodiversity as a priority in their Operational Programmes, and most dedicated some funds under the ERDF to nature conservation and Natura 2000 (INTERREG IVC SURF Nature project, 2011). However, the analysis of the 2007-2013 funding period shows that the biodiversity financing opportunities provided by the structural funds have not been taken up fully (Kettunen et al, 2011), In general, it is difficult to quantify 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.

[86] Article 5 of Regulation (EU) No 1301/2013 of the European Parliament and of the Council of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006. Official Journal of the European Union L347/289-302

Box 5.8 - The use of ERDF funds for Natura 2000 coastal habitats in 2007-2013

An example of a pioneering use of ERDF funds for Natura 2000 management was 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 project (2010-2013) developed an integrated management plan with a high level of public support, and restored a range of estuary habitats and species. 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 basin.

The ERDF Interreg-funded Natureship project (Finland, Sweden, Estonia and Latvia) from 2009 to 2013 emphasised a novel approach to the planning and management of traditional rural landscapes along the Baltic coastline. The project aimed at finding solutions that benefit nature, water protection, local farmers and entrepreneurs, as well as inhabitants, based on integrated sustainable coastal planning and with special emphasis on Natura 2000 areas.

TIDE (Tidal River Development) (2010-2013) was an ERDF the Interreg IV B North Sea Programme project for the estuaries of the Rivers Elbe (Germany), Humber (England), Scheldt (Belgium and the Netherlands) and Weser (Germany). TIDE aimed to create tools to integrate planning in local policy whilst ensuring that Natura 2000 and Water Framework Directive requirements are met, identifying the most important ecosystem services in each estuary and the related benefits. The project implemented a range of management and restoration measures for estuarine habitats, including coastal grazing marshes.

Source: Hjerp et al, 2011, http://www.umwelt.bremen.de/de/detail.php?gsid=bremen179.c.8044.de, http://www.tide-project.eu/, http://www.ymparisto.fi/natureship,

5.13 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 (Kettunen et al, 2011). 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. 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 the previous sections, rather than being considered as alternatives.

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 (ten Brink, 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 (ten Brink, 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)[87], developed by a UK water

[87] http://www.unitedutilities.com/scamp.aspx

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 this case study in Annex E for further details).

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. EU Member States must now account for emissions/removals from land use, land use change and forestry (LULUCF) in their national carbon budgets, a possible incentive to strengthen the protection of carbon-rich habitats. 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.

Further information

- Financing Natura 2000 Guidance Handbook 2007-2013 (the 2014-2020 version will be available soon) at http://ec.europa.eu/environment/nature/natura2000/financing/index_en.htm#guidancehandbook
- Further information at http://ec.europa.eu/environment/funding/intro_en.htm
- SURF Nature (2012) Handbook on Financing biodiversity in the context of the European Fund for Regional Development (EFRD). http://www.surf-nature.eu/fileadmin/SURFNATURE/Publications/FINAL_SURF_Handbook_V4_Sept_2012.pdf
- European Network for Rural Development database of 'best practice' rural development programmes and measures http://enrd.ec.europa.eu/themes/environment/environmental-services/en/environmental-services_en.cfm
- Kettunen & ten Brink (eds) (2013) Social and Economic Benefits of Protected Areas: An Assessment Guide. Routledge.
- Addressing biodiversity and habitat preservation through measures applied under the Common Agricultural Policy CAP and biodiversity. Report prepared for the European Commission, DG Agriculture and Rural Development. Institute for European Environmental Policy (IEEP), London, 2011: http://ec.europa.eu/agriculture/analysis/external/biodiversity-protection/index_en.htm

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

What does this chapter do?

This chapter provides a guide to the process of planning, funding and implementing support for farming systems and communities on which the conservation of key Natura 2000 species and habitats depends. The focus is on the key source of funding in Pillars 1 and 2 of the CAP with recommendations for each stage of the process.

6.1 Strategic planning and prioritisation of conservation objectives and funding

Recommendations:

- Ensure cooperation between nature and agriculture authorities and relevant stakeholders in strategic planning for Natura 2000
- Set clear strategic objectives and priorities for conservation of key habitats and species that depend on Natura 2000 farmland
- Use the prioritized action framework (PAF) as the basis for integrating Natura 2000 financing priorities into EAFRD and other funding programmes.
- Take timely action to ensure that Natura 2000 objectives and funding needs for 2014-20 from EAFRD and the other EU Funds are embedded in the Partnership Agreement submitted by the Member State for European Commission approval.

Ensure integrated strategic planning for Natura 2000

Strategic planning is important to establish conservation priorities and funding needs for Natura 2000 farmland before the start of the 2014-2020 programming period. This is important because funding resources are limited, biodiversity conservation has to compete with many other objectives, and priorities for national and EU funding are established early in the programming process. Strategic planning for Natura 2000 farmland should be a co-operative process involving the environmental and agricultural authorities and key stakeholders.

Essential steps for strategic planning and programming, and securing funding are described below.

Set clear conservation objectives for Natura 2000 farmland

Strategic planning needs to set clear conservation objectives and priorities at the national and/or regional level, taking into account the conservation status of key agricultural habitats and species, their importance in the country or region, and other relevant aspects. It is important to support existing farming systems that are preserving habitat quality, not just the areas of Natura 2000 farmland that are at immediate risk from pressures for intensification or abandonment. This may be done by taking into account the assessment of the conservation status of habitats and species from Article 17 reporting, and data on pressure indicators such as those relating to the risk of abandonment.

Conservation objectives may be set at regional or national levels, and then translated into site level, i.e. to the Natura 2000 sites where the target habitats and species are present (see also section 3.1 on setting conservation objectives). Different management approaches are needed in different agricultural and conservation status situations, from maintenance of existing farming systems and practices to habitat restoration and reinstatement of management on abandoned land.

Not all sites will require a site management plan (and approaches to management planning of Natura 2000 sites vary in different Member States), but it is always necessary to establish the necessary conservation measures for all Special Areas of Conservation, in accordance with Article 6.1 of the Habitats Directive (see section 3.2). It is important to identify the status of farmland habitats and species, and the conservation objectives, and to provide guidance on appropriate management options. It is possible to use RDP funding to support the process of preparing and updating of Natura 2000 management plans and processes (see section 5.8).

In order to maintain and enhance sufficient coherent habitat for a species to maintain or build up a viable population, the measures need to target the right areas and be taken up across a sufficient area (Whittingham, 2007). Therefore, it may not be sufficient to target only the areas that currently hold populations to ensure long-term conservation success (RSPB & Birdlife International, 2011).

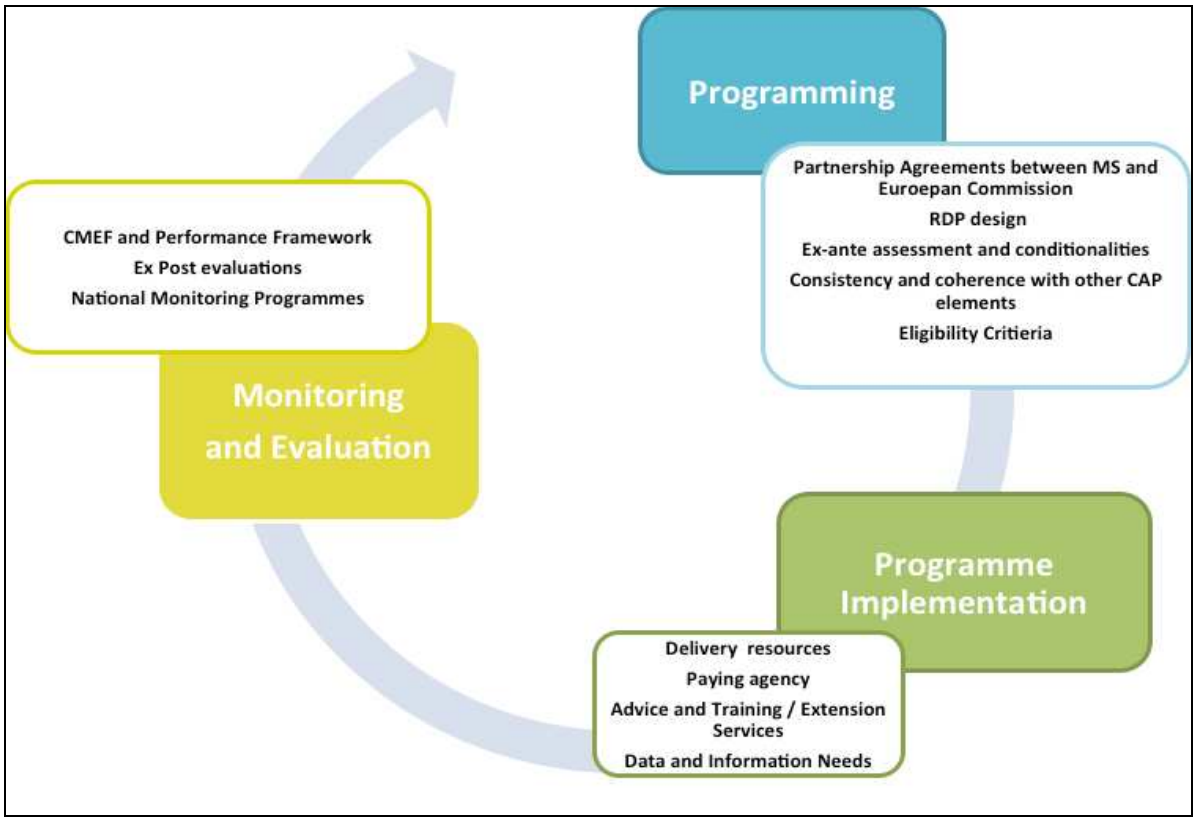
Integrate Natura 2000 farmland conservation objectives into relevant strategic policies and programmes and ensure adequate funding

It is crucial to identify the financial resources to support the management of Natura 2000 farmland and ensure the long-term economic survival of the farming systems on which they depend. Identifying the necessary conservation measures in management plans and other instruments is just the start of the process.

Member States Prioritized Action Frameworks for financing Natura 2000 should identify the strategic priorities, the measures required for the 2014-2020 programming period and the funding instruments that may be used to implement those measures (see section 3.3). Securing EU co-financing for 2014-20 requires timely action before the relevant operational programmes are prepared. The programming cycle for 2014-2020 Rural Development Programmes is illustrated in Figure 6.1. Some countries have already developed interesting

approaches to the integration of Natura 2000 financial needs into relevant EU co-funded programmes, including rural development (see Box 6.1).

Figure 6.2. A typical rural development programming cycle



Box 6.1 Integration of Natura 2000 into EU funding programmes

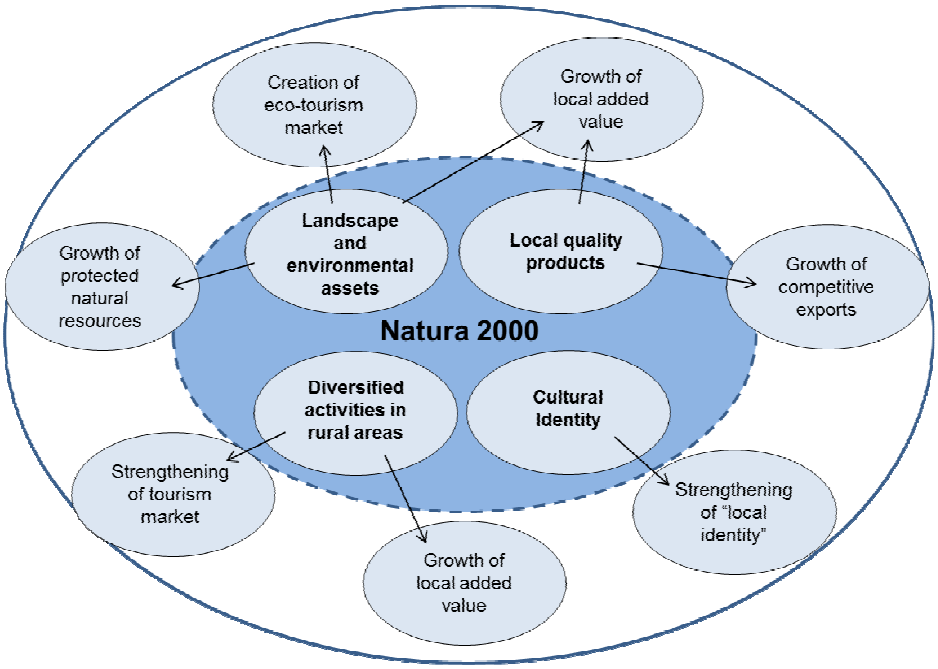
The Slovenian "Natura 2000 Site Management Programme 2007-2013" is a notable example of a national level integrated approach to Natura 2000 conservation planning. The programme developed detailed conservation objectives, measures to achieve those objectives, and monitoring and research proposals, for 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.

Source: (Republic of Slovenia Ministry of the Environment and Spatial Planning, 2007).

It is important to embed Natura 2000 policy objectives in regional sustainable development strategies. Natura 2000 farmland communities can also benefit from initiatives such as ecotourism, adding value to agricultural products from Natura 2000 farmland, quality labels, and support for direct marketing structures. In some cases market-based schemes implementing Payments for Ecosystem Services have shown potential to support

conservation management. Long-term protection of Natura 2000 biodiversity may also require the regeneration of cultural and social capital, taking advantage of the environmental values, knowledge, skills and potential for innovation that exist within farming communities. This can include ways to recognise the ecological expertise of land managers through awards and publicity, and ways to encourage farmer cooperatives or associations to facilitate Natura 2000 management and gain added benefits. Figure 6.1 illustrates the wider benefits from a community based approach to Natura 2000 conservation.

Figure 6.1 Positive synergies and benefits that can be gained from Natura 2000 farmland conservation. (Based on (Mantino, 2011).



6.2 Identifying Natura 2000 farmland and farming systems, and engaging with the farmers

Recommendations:

- Identify the extent and location of Natura 2000 farmland, including land used by farmers but not claimed and not recorded in the LPIS by the agricultural authorities as part of the Utilised Agricultural Area; recently abandoned farmland; and land outside the Natura 2000 site which is an integral part of the farming system maintaining Natura 2000
- Assess the current situation of Natura 2000 farmland, the economic viability of the Natura 2000 farming systems, and the key pressures and drivers of change in land management or land use
- Engage the farmers and local communities in this information gathering process and develop a partnership approach that involves them fully in the process of designing, delivering and monitoring support measures for their farming systems and the rural economy

Identify the extent and location of Natura 2000 farmland

In most Member States the existing agricultural databases (such as IACS and LPIS) that record the land and farmers eligible for CAP support are almost certainly an incomplete record of Natura 2000 farmland. It is therefore essential to work with local experts, the farmers themselves, and both environmental and agricultural authorities to identify the actual extent and location of Natura 2000 farmland. Resources such as habitat and species records, and land cover imaging may help but local knowledge is essential.

Natura 2000 farmland is likely to include land used by farmers but not currently recorded by the agricultural authorities as part of the Utilised Agricultural Area (for a variety of reasons); recently abandoned farmland; and land outside the Natura 2000 site that is an integral part of the farming system maintaining Natura 2000 land (for example the lowland hay meadows or pastures that provide winter fodder for livestock that graze Natura 2000 habitats in summer).

It is also important to identify land used by farmers but owned by others, such as common land, and arable or pastureland that for part of the year is grazed by landless graziers. In some Member States cadastre records of land use may be out of date, or agricultural land may be recorded as forest. Recording the extent and location of the farmland associated with Natura 2000 is the first, essential, step in securing support payments, and the information should be compiled in a GIS format that can easily be updated and is compatible with the LPIS system used by the agricultural authorities (see Box 6.2). The important issue of considering the possibilities for defining eligiblity rules to include Natura 2000 farmland for CAP payments is discussed in section 6.4 below.

Box 6.2 - Integrating Natura 2000 farmland habitats into CAP adminstrative systems

National inventory of semi-natural grassland in Slovakia: Slovakia has mapped its semi-natural grassland habitat types at a national level, and this mapping is incorporated into the agricultural land parcel management system. Slovakia's grassland inventory is therefore 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 mapping is used to target a national programme of agri-environmental measures for supporting extensive farming on semi-natural grasslands over the whole country to targeted to those areas recognised as having a minimum biodiversity value (High Nature Value), including Natura 2000 sites. The programme defines particular agricultural practices for specific habitat types grouped into seven categories according to the inventory (Dry Grasslands, Mesoic grasslands, Mountain hay meadows, Wet grasslands of lower altitudes, Alluvial Cnidion grasslands, Wet grasslands of higher altitudes, Fen and Molinia meadows and High-mountain grasslands).

Source: Seffer et al 2002, Slovakia case study in Annex E

Assess the current situation of Natura 2000 farming and its economic viability, and identify the key drivers of change

To be able to set appropriate targets, prioritize actions and design programmes that will improve the conservation status of key agricultural habitats and species, Member States need to conduct their own national and/or regional analysis of the current state of their Natura 2000 farming systems. This should consider the economic viability of the extensive farming systems and the drivers and pressures for change that they face, now and in the future. Uneconomic farms are particularly vulnerable to quite small changes in their circumstances, which can lead to major changes in land use and management. The analysis should identify areas that are at risk from pressures for intensification or abandonment, but it is just as important to identify the existing farming systems that are preserving species and habitats, such as High Nature Value farming areas (see sections 2.4 and 2.5).

Engage farmers and local communities and develop a partnership approach to planning, design and delivery of support measures

Integrated management of farmland in Natura 2000 areas requires the active cooperation of agricultural and nature/environmental authorities at national and regional levels in the definition of strategic priorities and the design of appropriate measures, but also local co-operation in designing and delivering these measures. Developing suitable instruments and measures must involve farmers and land managers in scheme design and delivery. This is essential to ensure that support mechanisms are fit for purpose at local scales, and are fully accepted and used by the local communities. There is increasing evidence of farmers wanting to have a say in designing the support measures and that this is leading to successful outcomes (Poláková et al, 2011).

Ways of getting people together are often overlooked in policy and funding instruments, and so remainunder-recognised and under resourced. As a result some communities continue to have a strong distrust of Natura 2000. This can only be overcome by ensuring a more systematic approach to dialogue and cooperation at local level, and by creating and using local organisations/ or partnerships that bring the different parties together to discuss at a practical level how to integrate all interests (as is done systematically in France through the *local comités*). It is possible to use RDP funding to support this process (see section 5.9).

The partnership principle is already embedded in rural development policy (likewise in other relevant EU funds), with a requirement on Member States and regions to involve relevant social, economic and other appropriate bodyies (including environmental organisations) in all aspects of the preparation, implementation, monitoring and evaluation of RDPs. The legislation for 2014-2020 requires that 'partners' shall be involved at each stage of the programme cycle and shall be members of the Monitoring Committee.

Local partnerships to implement Natura 2000 on the ground can make the difference between a relatively low level of success and real achievement of both favourable conservation status and economically viable farming. Agricultural and nature conservation authorities, NGOs, farmers and other stakeholders are increasingly working in partnerships to develop land management schemes in Natura 2000 sites, and a feeling of collective

responsibility and local ownership is one of the most important success factors for site management (see Box 6.3).

Natura 2000 designation has often generated fears and misunderstandings, but there are some good examples where use conflicts have been successfully resolved by a partnership approach at the local scale and different measures have been successfully combined to create a situation where farming Natura 2000 habitats is socially and -economically viable.

Box 6.3 - Tailoring measures to local conditions with the participation of farmers and land managers

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 the traditional practice of winter grazing by cattle has been long valued for its capacity to maintain the rich diversity of species and habitats existing in the area. The Burren Farming for Conservation Programme (BFCP) provides farmers 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 optimal species-rich grasslands, and suggest actions and priorities. The supported activities are mapped and costed by a trained advisor in the BFCP team (funded by the National Parks and Wildlife Service). The innovative compensation arrangements developed for the scheme are considered key to achieving the outcomes desired. Farm plans are now quite simple and clear, made up of just to 2 sides of paper; 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.

Source: Ireland case study in Annex E and Irish Rural Development Programme proposal (see http://www.agriculture.gov.ie/media/migration/press/pressreleases/2014/DraftConsultation%20DocRDP14%20Jan.pdf)

Grassland management in the Krkonoše National Park (Czech Republic)

Since 2010, the grassland habitats of the Krkonoše National Park and SCI are managed according to the conservation priorities and agricultural practices defined in the ten year management plan.. The Park has developed a pilot model of "nature-friendly management" at the farm level in order 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 at farm level and to avoid biodiversity degradation due to inappropriate farm practices (e.g. removal of shrubs 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. It lists available measures based on existing agri-environment schemes, and specific measures such as more flexible late mowing, diverse grazing regimes, support of partial (strip, mosaic) mowing, and decrease of livestock per hectare. The plan may also include exceptions from general rules with permission of the nature conservation authority, and 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). An efficient advisory system and regular communication with farmers are crucial to increasing the environmental awareness.

Source: Czech Republic case study in Annex E

6.3 Ensuring eligibility for CAP support and setting the reference level

Recommendations:

Through joint working and close co-operation between the environmental and agricultural authorities:

- ensure that all possibilities are considerd so that the Natura 2000 farmland identified is classed as part of the 'agricultural area' defined by the new Regulation, including any agricultural areas naturally kept in a state suitable for grazing or cultivation; and that this land is recorded in the LPIS/IACS systems
- use the flexibility available to agricultural managing authorities in the CAP regulations to ensure that Natura 2000 farmers using this land are eligible for both Pillar 1 and Pillar 2 CAP support (which may have different eligibility rules)
- within the legislative boundaries, define other CAP eligibility rules in a way that fits the characteristics of High Nature Value and/or Natura 2000 farmland
- ensure there is a clear distinction, readily understood by farmers, between a) legal obligations placed on farmers by national or regional legislation linked to Natura 2000 implementation which should constitute the Statutory Management Requirements (SMR) of the cross-compliance related to both the Birds and Habitats Directives; b) other national or regional legislation; and, c) where applicable, requirements according to points (ii) and (iii) of Article 4(1)(c) of Regulation (EU) No 1307/2009.

Ensure eligibility for CAP support, using flexibility available in the CAP regulations

It is important that that Natura 2000 farmland is classified as 'agricultural area' , not just for eligibility for CAP payments, particularly for income support under Pillar 1, but because the indicators that will be defined to evaluate the impact of Member States' use of EAFRD funds are likely to be measured on the agricultural area. Land not recognised as agricultural will be excluded from this assessment of the effectiveness of EAFRD funding, making it more difficult to justify funding in the next programming period.

The agricultural authorities managing CAP and EAFRD funding at Member State or regional level have the responsibility for defining and applying rules on eligibility of land and beneficiaries for CAP payments and for maintaining records and monitoring expenditure. It is absolutely essential that there is close and timely co-operation between the Natura 2000 authorities and the agricultural authorities to ensure that eligibility issues are satisfactorily resolved before proposals for the next programming period are finalised and submitted for Commission approval. There is considerable flexibility inherent in the CAP regulations to accommodate the particular needs of Natura 2000 farmers, but there is no obligation on the authorities to use it for that purpose (and often pressure from other agricultural sectors to define rules that fit best the larger more intensive farming systems).

Particular attention should be paid to the situation of farmers using other farmers' land on an informal basis or for only part of the year; to farmland with complex land tenure systems, such as communal use; and to the many Natura 2000 grazed habitats that have a significant

proportion of trees and shrubs which contribute to their biodiversity value, but which have been excluded from payment in the past, often as a result of the way in which Member States interpreted the rules on presence of trees.

Box 6.4 Helping small-scale farmers in Natura 2000 access CAP support payments

Advisory Services in Transilvania (Romania)

The NGO Fundația ADEPT Transilvania in the Târnava Mare area of Romania 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. Around 60% of the holdings in the area are below the minimum size (1 ha total, made up of minimum 0.3 ha parcels) required to receive direct payments under CAP Pillar 1 in Romania. However, the NGO has facilitated arrangements whereby active farmers rent land from neighbours, and qualify for payments according to the amount of land they manage. In addition, the municipalities, which own the common grazing land and do not qualify for payments, have agreed to long-term rents with grazing associations so that they can apply for agri-environment contracts. This has brought large areas of land into CAP funded management schemes and out of the risk of abandonment.

Source: Romania case study in Annex E

Setting the reference level for payments

The reference level for CAP income support, agri-environment-climate and other area-based payments has changed for the 2014-2020 planning period, with the introduction of 'greening' payments and revisions to GAEC and SMR in the cross-compliance framework (and the corresponding national or regional level standards).

As with eligibility for CAP payments there is flexibility in the way in which GAEC standards and 'permanent grassland' can be defined, and Member States are required to take account of local conditions and established local practices, which means that there should be opportunity for adopting definitions that will to a larger extent include HNV and Natura 2000 land in Pillar 1 and 2 support systems. Again this will require close and timely co-operation between the agricultural and environmental authorities on both defining permanent grassland and new cross-compliance standards. The options available to Member States when setting the budgetary ceilings for different schemes and the payment rates per hectare under those schemes are to be taken into account as well. In setting legal obligations on farmers for management of Natura 2000 land it is important to recognise that these are also part of the baseline for calculating agri-environment-climate payments. Although farmers can be compensated for the legal requirements, these Natura 2000 payments are not able to support positive restoration management to the same extent as agri-environment-climate payments, and cannot be matched to the needs of individual farms or habitats and there is no provision to pay the farmers' transaction costs. The legal requirements under the Habitats and Birds Directives and these two RDP measures should

be designed as an integrated package of Natura 2000 support that effectively compensates the farmers' costs of nature protection and of positive management.

6.4 Designing and targeting coherent packages of CAP support for Natura 2000 farms

Recommendations:

- Adopt an inclusive partnership approach to designing Natura 2000 support measures, fully involving the target farmers and making use of their expert knowledge of farm and habitat management.
- Design coherent, integrated packages of support from both Pillars of the CAP to address the specific needs of Natura 2000 farming systems and the key habitats and species that they manage. These should meet local needs to support:
  - the continuation of farming
  - extensive farming systems
  - capacity building and adding value to farm produce
  - agricultural management of Natura 2000 habitats and species
- Consider the possibilities for ensuring that small farmers are able to access easily the appropriate support from both Pillars of the CAP.
- Make use of the new thematic RDP sub-programme options for mountain farms and small farms to devise specific Natura 2000 options, with higher rates of support.
- Ensure that payments rates for Areas with Natural Constraints (ANC), Natura 2000 and agri-environment-climate measures reflect the full cost of management, especially where there is little or no income to forgo, and use the option for adding transaction costs to these calculations, where available.
- Make cost-effective use of available funding by designing and targeting support as closely as possible to farm and habitat requirements, at the appropriate spatial scale.
- Make full use of opportunities to use group and co-operative approaches, especially where multiple small farms are involved and to encourage 'bottom up' delivery through Leader.

Designing coherent, integrated packages of support

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 is critical to designing policy responses that both address the issues and ensure coherence between different measures, particularly in relation to their eligibility criteria and management requirements.

Natura 2000 farming systems and the key habitats and species that depend on them require coherent, integrated packages of support from both Pillars of the CAP. Income support payments of several types are available from Pillar 1, and the new structure of the EAFRD makes it very much easier to design coherent packages of RDP support for the 2014-2020 programming period (in contrast to the past RDPs where support for economic, environmental and social objectives could be combined only by using Leader).

At present many Natura 2000 farming systems are the 'poor relation' of the CAP system, with incomplete access to fragmented sources of support and low levels of payment. Extensive farming systems that provide Natura 2000 habitats need to be economically and socially viable, and this depends on farms receiving an adequate and reliable baseline of CAP income support payments and support for capacity building, as well as payments that can address the specific management needs of certain habitats and species. The design process should take a holistic view of the needs of these farms to build up a coherent package of four related types of support:

- to ensure that farming continues on the Natura 2000 land
- to support the extensive farming systems associated with the key species and habitats
- to build capacity and add value to farm produce, to improve economic sustainability
- to support specific conservation management of Natura 2000 habitats and species

The logical structure of this hierarchy of coherent support is first to secure the farming system and its economic viability, then to provide incentives for the very detailed habitat and species management. The range of potential measures to meet these needs is illustrated in Table 6.1 below, and each type of support is described in Chapter 5. The choice of measures is quite wide and will depend on the strategic objectives, the characteristics of the Natura 2000 farming systems, the threats they face and the opportunities available within the rural economy.

It is important to adopt an inclusive partnership approach to designing Natura 2000 support measures. 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, fully involving the target farmers and making use of their understanding of farm and habitat management.

It is particularly important to consider the possibilities available to Member States for ensuring that small farmers are able to access payments from both Pillars of the CAP. The issue of eligibility has been discussed above, but some of these farmers may be completely unfamiliar with the administrative system. It is very important that support is available to them from a trusted source in a form and a place that is easily accessible, for example one-to-one advice in a local office.

The proposed new thematic RDP sub-programme options for Member States include a focus on mountain farms and on small farms, with integrated programmes of support and higher rates of payment. There is opportunity to develop specific measures within these sub-programmes for Natura 2000 and other HNV farming systems, which could be flagged up in the Partnership Agreement with the European Commission and fully developed in the RDP.

Table 6.1 CAP support measures for Natura 2000 farming systems and management *(measures shown in bold are compulsory for Member States)*

Objective	**Pillar 1**	**Pillar2**
Ensure that farming continues	– **Basic Payment Scheme, Single Area Payment Scheme** – 'Greening' payment – Payments for Areas with Natural Constraints (ANC) – Voluntary coupled support – Or, as an alternative to all Direct Payments under Pillar 1, Small Farmers Scheme	– ANC compensation payment
Support extensive farming systems	– ANC payment – Coupled payments	– ANC compensation payment – Organic farming
Build capacity and add value	– **Young Farmers Scheme**	– Advisory services – Knowledge transfer and information – Investment in physical assets – Farm and business development – Setting up producer groups – Quality schemes for agricultural products – Basic services (drawing up Natura 2000/HNV management plans)
Specific conservation management of Natura 2000 habitats and species		– **Agri-environment-climate** – Non-productive investments – Natura 2000 payments – Animal welfare payments – Prevention of forest fires and restoring agricultural potential

Payment calculations for ANC and agri-environment-climate payments

Setting payment rates is critical to successful uptake of environmental land management payments in RDPs, because farmers will not apply for schemes if they perceive the payments rates to be too low. The payment system needs to be transparent and accountable in order to build trust with farmers, conservation organisations, and the general public.

The formula for payment calculation (income foregone + costs incurred + beneficiary's transaction costs[88]) and the data used should correspond to the cost of current normal farming practices and conservation work in the area where the scheme is implemented. This means that payments for the same type of measure can vary considerably from place to place, depending on circumstances. It is very important ensure that payment rates for ANC, Natura 2000 and agri-environment-climate measures reflect the full cost of management, especially where there is little or no income to forgo. Transaction costs should be added to these calculations, as these can be a considerable demand on farmers' time in highly targeted schemes like those in Natura 2000 areas, and for farmers who do not have administrative support. Member States should respect the maximum payment rates set out in the Regulation, unless they can justify higher rates, which may occasionally be the case in some Natura 2000 areas especially if these are at risk of abandonment.

Targeting and scale

It is important make cost-effective use of available funding by designing and targeting support as closely as possible to farm and habitat requirements and at the appropriate spatial scale.

Horizontal measures may be useful in some situations for certain habitat types or species where a few simple requirements can be applied across the whole farmed landscape in a region or country, as in the case of grasslands conservation in Slovakia or Baltic meadows in Estonia (see Box 6.5 and case studies in Annex E).

Box 6.5 Strategic approaches aimed at wide-scale conservation of particular habitats

Cooperation between Ministries of Environment and Agriculture for key farmland habitats 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. The Ministry of Agriculture then 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 scheme subsequently joined the RDP scheme. The agri-environment scheme targeted a much larger area, and also covered 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.

[88] this is an additional amount of up to 20 or 30 per cent, depending on the scheme

The scheme is managed by the Ministry of Agriculture 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. Around half of all the coastal meadows in Estonia have been included in the agri-environment scheme so far.

Source: Estonia case studys in Annex E

For many situations more specific local approaches may be required in certain areas, such as highly tailored and targeted measures that are best suited to the specific management needs of a particular species or habitat in a particular location. Targeting is likely to be very important for many Natura habitats and species as these may not always be effectively conserved by broad-scale (eg national) agri-environment type measures that primarily aim to maintain a habitat in general terms. For example, the Slovakian semi-natural grassland schemes found that horizontal measures were not very effective as different species and habitats often have different conservation needs, which may vary locally. The aim is therefore to improve the effectiveness of the scheme by developing more specific measures that are targeted to priority areas (e.g. Natura 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 (Box 6.6).

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 to be 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.

Box 6.6 Large scale or local?

Balancing the different management requirements for different species and habitats on a Natura 2000 site can be very complex, but the traditional agricultural management in areas where the species and habitats survive can provide the solutions that are well adapted to the local needs. For instance, floodplain grasslands in Slovakia host several butterfly species included in the Habitats Directives, as *Maculinea teleius, M. nausithous*, and *Lycaena dispar*, which are closely connected with traditionally used alluvial meadows. These species were adapted to traditional mosaic mowing as the site was never mown at once. Mosaic management is also important for Corncrake (*Crex crex)* especially in the years with shorter flood periods. In contrast, other bird species of European importance like Red-backed Shrike (*Lanius collurio)* or Black Stork (*Ciconia nigra)* may benefit from large-scale mowing, because freshly mown grasslands are very attractive food sources.

Source: RSPB and BirdLife International, 2011).

Groups and co-operative approaches

Many land management schemes, to be effective, require significant uptake 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, and make best use of the opportunities in the regulation to facilitate and support landscape scale uptake. It may sometimes be more efficient to encourage and facilitate farmers to group together in cooperatives or associations in order to sign agri-environment agreements, rather than signing agreements with individual farmers.

Group and co-operative approaches to delivering RDP measures can be particularly useful for Natura, especially where multiple small farms are involved. 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 Box 6.4 and case study from Romania in Annex E). The role of facilitators or a coordinating organisation is particularly important in group agreements, and could be supported under the RDP.

The involvement of non-farmer groups and a 'bottom up' approach to delivery of locally targeted schemes can both be supported through Leader. The Dutch environmental co-operatives illustrate this well (Franks and Mc Gloin, 2007) as do the German Land Care Associations (see Box 6.6). These co-operative associations link nature conservation groups with local farmers and local communities across a region, and can often bring opposing interest groups to work together to care for Natura 2000 sites. The basis for successful projects is the close cooperation with farmers, local communities, conservation groups and government authorities.

Box 6.6 Cooperative partnerships with farmers and local communities

The Landcare Asociations 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. For example, in the Altmühltal Natura 2000 dry grassland region in Bavaria, Germany, Landcare 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 lamb. Coordination between farmers is also necessary to ensure that 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.

Local Landcare coordinators develop projects for specific landscape types including scientific measures, financial calculations, and suitable agri-environment schemes. They apply for available funds 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. Natura 2000 management is based on the combination of three main funding elements: 1) direct payments, 2) agri-environment programmes, 3) land management programmes funded through natural heritage measure of EAFRD.

Sources: www.altmuehltaler-lamm.de and www.lpv.de

6.5 Securing financial, technical, advisory and administrative resources for implementation

Recommendations:

- Ensure that sufficient financial and other resources are available for long-term support, including trained advisory and paying agency staff with the technical expertise required for Natura 2000 land management
- Advice and information should be delivered by sources trusted by the farmer.

Ensure that sufficient financial and other resources are available for long-term support

Funding under RDPs 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-term 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.

It is essential to secure funding not just for payments to farmers but also to cover all the institutional delivery and support costs. Some of these costs are co-financed by the EAFRD, for example advisory services, training and skills acquisition (including training the advisers and trainers), preparation of Natura 2000 and HNV management plans, group facilitation and Leader. In many cases these services are delivered by contractors to government, including NGOs and farmer organisations (see chapter 5 for details).

In allocating resources to delivery of Natura 2000 support it is important to recognise the proportionally higher burden of institutional transaction costs where large numbers of small farmers are involved, and where both farmers and delivery staff are involved for the first time. Specialist training in Natura 2000 management and farming systems will be required for delivery staff and especially for paying agency staff responsible for compliance, who will decide whether farmers have met the requirements of cross-compliance and their agri-environment contracts, and therefore can be paid.

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

Delivering integrated advice and information

Advice and information should be delivered by sources trusted by the farmer (otherwise it is likely to be ignored) and should always integrate advice on conservation with advice on how this can be accommodated within the farming system (see Box 6.7). Advisors also 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. Care is required to ensure that those providing the advice have the necessary technical capacity and expertise to do so, especially for Natura 2000 farmland. Advisory services can also be provided by locally-based organisations such as NGOs and farmers'

associations. The availability of CAP support for advice and information services is described in section 5.6. It is important to also use the opportunities for funding vocational training and skills training, workshops and coaching, demonstration activities and farm visits and short-term farm management exchanges. On-farm visits and farmer-farmer exchanges have a particularly important role in encouraging farmers to join agri-environment schemes, to raise their motivation and encourage creativity and innovation in management practices for conservation (see Annex E case studies from Ireland, Germany, Czech Republic, Romania, Austria and Netherlands, among others, where efficient advisory systems and regular communication with farmers have been set up).

Box 6.7 Integrated agricultural and conservation advice for farmers

The "Partnerbetrieb Naturschutz" programme in Rheinland-Pfalz, Germany

The "Partnerbetrieb Naturschutz" initiative offers farmers integrated agricultural and conservation advice for the whole farm and dialogue-based planning. The advisory teams include both environmental and agronomic advisors.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 the proposed conservation measures.

Source: Germany case study in Annex E

6.6 Monitoring, evaluation and review

Recommendations:

- 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 delivery if targets are not being met.
- Ensure data gathering systems are embedded in scheme delivery processes from the outset
- Ensure sufficient capacity to both monitor and evaluate outcomes.
- Specify desired outcomes or 'milestones' and 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.

Ensure effective 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.

Monitoring and evaluation must be carried out at different levels. Regular monitoring should be an integral part of every Natura 2000 support programme. Monitoring should allow the assessment of 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 also important to integrate scientific monitoring and research results into improvements to management recommendations (see Box 6.9 and section 4.3).

It is important to design monitoring schemes that can also be applied at farm level using suitable indicators that can be easily verified. Involving farmers in regular monitoring of the results achieved through their implementation of the required measures has proved to be a very effective way to improve their participation in the implementation. Wider public communication is also very important to create a positive image of the target species and habitats, and recognise those who make efforts to protect them.

Member States should integrate the results of regular monitoring reports from Natura 2000 into financing mechanisms and retarget existing policy instruments accordingly. This specifically requires the integration of Natura 2000 monitoring results into agricultural policy measures that have a direct impact on key farmland species and habitatsof Natura 2000. In order to effectively implement an integrated programme of combined measures, it is crucial to develop a **common data information system** that brings together agricultural, botanical, zoological and land users data for Natura 2000 areas.

Monitoring of RDPs will be established through indicators to be defined in a new common monitoring and evaluation framework (defined in implementing acts later in 2014). These must be applied in all Member States, and include common context indicators for Natura 2000 areas, conservation status of agricultural habitats and HNV farming. Member States are also able to put in place additional indicators relevant to their national/regional situation. In addition to these formal evaluation requirements, ‘fast track’ internal review processes set up by Managing Authorities during the first two years of a scheme can provide a very effective way of identifying and resolving problems before these can affect implementation, environmental effectiveness or farmers’ attitudes.

At the national or regional level, the main aim of monitoring and evaluation activities is to provide feedback to scheme managers and policy-makers on how well a Natura 2000 scheme is functioning and whether it is achieving its objectives. This is effectively a part of an ‘active learning process’ that enables the Managing Authority to review and revise existing schemes and measures, and improve the design of future schemes and measures. Where Natura 2000 management schemes are being introduced for the first time, small-

scale pilot testing and evaluation can improve the efficiency, acceptance and delivery of the schemes.

Box 6.8 ***Farmers and researchers collaborate to optimise species conservation***

Hamster-friendly management has been implemented in the Netherlands with an effective collaboration of farmers and researchers. 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.

Direct and continuing advice and one-to-one support to farmers also significantly contributed to 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.

Source: Netherlands case study in Annex E.

REFERENCES

Allen, B, Buckwell, A, Baldock, D and Menadue, H (2012) *Maximising environmental benefits through Ecological Focus Areas*. Report commissioned by the Land Use Policy Group, Institute for European Environmental Policy, London, UK.

Angileri, V (2011) *Farm Advisory System in the EU: proposals for improvement*. Results of the FAS workshop, Warsaw 8-9 February 2011. Joint Research Centre of the European Commission, Warsaw.

Apostolopoulou, E and Pantis, J (2009) Conceptual gaps in the national strategy for the implementation of the European Natura 2000 conservation policy in Greece. *Biological Conservation*, No 142, (1) pp221-237.

Baines, D and Andrew, M (2003) Marking of deer fences to reduce frequency of collisions by woodland grouse. *Biological Conservation*, No 110, (2) pp169-176.

Barnes, A P, Schwarz, G, Keenleyside, C, Thomson, S, Waterhouse, T, Poláková, J, Stewart, S and Cracken, D (2011) *Alternative payment approaches for non-economic farming systems delivering environmental public goods*. Final report for Scottish Natural Heritage, Scottish Environment Protection Agency, Countryside Council for Wales and Northern Ireland Environment Agency, Scottish Agricultural College; Institute for European Environmental Policy; Johann Heinrich von Thünen Institut, http://www.snh.gov.uk/docs/A931062.pdf.

Batáry, P, Báldi, A and Erdos, S (2007a) Grassland versus non-grassland bird abundance and diversity in managed grasslands: local, landscape and regional scale effects. *Biodiversity and Conservation*, No 16, (4) pp871-881.

Batáry, P, Báldi, A, Szél, G, Podlussány, A, Rozner, I and Erdos, S (2007b) Responses of grassland specialist and generalist beetles to management and landscape complexity. *Diversity and Distributions*, No 13, (2) pp196-202.

Baur, B, Cremene, C, Groza, G, Rakosy, L, Schileyko, A A, Baur, A, Stoll, P and Erhardt, A (2006) Effects of abandonment of subalpine hay meadows on plant and invertebrate diversity in Transylvania, Romania. *Biological Conservation*, No 132, (2) pp261-273.

Beaufoy, G and Marsden, K (2010) *CAP Reform 2013: last chance to stop the decline of Europe's High Nature Value farming?* Joint position paper by EFNCP, BirdLife International, Butterfly Conservation Europe and WWF. European Forum on Nature Conservation and Pastoralism, Derwentside, UK.

Beaufoy, G, Jones, G, Kazakova, Y, McGurn, P, Poux, X and Stefanova, V (2011a) *Permanent Pastures and Meadows under the CAP: the situation in 6 countries*. European Forum for Nature Conservation and Pastoralism (EFNCP) and the Grasslands Trust, Derwentside.

Beaufoy, G, Jones, G, Kazakova, Y, McGurn, P, Poux, X and Stefanova, V (2011b) *Permanent Pastures and Meadows: adapting CAP Pillar 1 to support public goods*. European Forum for Nature Conservation and Pastoralism (EFNCP) and the Grasslands Trust, Derwentside.

Bergmeier, E, Petermann, J and Schröder, E (2012) Geobotanical survey of wood-pasture habitats in Europe: diversity, threats and conservation. *Biodiversity and Conservation*, No 19, (11) pp2995-3014.

Beynon, S A (2012) Potential environmental consequences of administration of anthelmintics to sheep. *Veterinary Parasitology*, No 189, (1) pp113-124.

BfN (2011) Verzeichnis Der in Deutschland Vorkommenden Lebensraumtypen Des Europäischen Schutzgebietssytems NATURA 2000. Bundesamt fuer Naturschutz http://www.bfn.de/0316_typ_lebensraum.html

Birdlife International (2004) *Birds in the European Union: a Status Assessment*. Birdlife International, Wageningen, Netherlands.

Birdlife International (2009) *Through the green smokescreen - How is CAP cross-compliance delivering for biodiversity?* BirdLife International, Brussels.

Boccaccio, L, Brunner, A and Powell, A (2009) *Could Do Better - How is EU Rural Development Policy Delivering for Biodiversity?* Birdlife International, Brussels.

Bota, G, Morales, M B, Mañosa, S and Camprodon, J (eds) (2005) *Ecology and Conservation of Steppe-Land Birds.* Lynx Edicions & Centre Tecnològic Forestal de Catalunya, Barcelona, Spain.

Buckingham, D L, Atkinson, P W, Peel, S and Peach, W (2010) New conservation measures for birds on grasslands and livestock farms, in *BOU Proceedings - Lowland Farmland Birds III*. British Ornithologist's Union, http://www.bouproc.net/.

Caballero, R and Fernández-Santos, X (2009) Grazing institutions in Castilla-La-Mancha, dynamic or downward trend in the Spanish cereal-sheep system. *Agricultural Systems*, No 101, (1-2) pp69-79.

Calaciura, B and Spinelli, O (2008) *Management of Natura 2000 Habitats: 5210 Arborescent matorral with Juniperus spp.* Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. Technical Report 2008 10/24, European Commission, Brussels.

Campbell, L H, Avery, M I, Donald, P, Evans, A D, Green, R E and Wilson, J D (1997) *A review of the indirect effects of pesticides on birds*. 227, JNCC Report, Joint Nature Conservation Committee, Peterborough.

Catry, I, Amano, T, Franco, A M A and Sutherland, W J (2012) Influence of spatial and temporal dynamics of agricultural practices on the lesser kestrel. *Journal of Applied Ecology*, No 49, (1) pp99-108.

CEEweb (2011) Natura 2000 Implementation Fact Sheets. CEEweb http://www.ceeweb.org/workingroups/natura2000/resources/index.html

Ceulemans, T, Merckx, R, Hens, M and Honnay, O (2013) Plant species loss from European semi-natural grasslands following nutrient enrichment - is it nitrogen or is it phosphorus? *Global Ecology and Biogeography*, No 22, (1) pp73-82.

Christin, M-S, Gendron, A D, Brousseau, P, Menard, L, Marcogliese, D J, Cyr, D, Ruby, S and Fournier, M (2009) Effects of agricultural pesticides on the immune system of *Rana pipiens* and on its resistance to parasitic infection. *Environmental Toxicology*, No 22, (5) pp1127-1133.

Cizek, O, Zamecnik, J, Tropek, R, Kocarek, P and Konvicka, M (2012) Diversification of mowing regime increases arthropods diversity in species-poor cultural hay meadows. *Journal of Insect Conservation*, No 16, (2) pp215-226.

Clothier, L and Finch, E (2012) *The farm practices survey 2009 uplands and other less favoured areas (LFAs) survey report*. Agricultural Change and Environment Observatory Report No. 16, Department for Environment, Food and Rural Affairs, London.

Cop, J, Vidrih, M and Hacin, J (2009) Influence of cutting regime and fertilizer application on the botanical composition, yield and nutritive value of herbage of wet grasslands in Central Europe. *Grass and Forage Science*, No 64, (4) pp454-465.

COWI (2009) *Ex-post evaluation of projects and activities financed under the LIFE programme*. Final Report Part 1: Methodology and description of the LIFE programme and its policy context. COWI, Kongens Lyngby, Denmark.

Cumulus Consultants (2011) *High Nature Value farmland in Rural Development policy: South Devon Case Study*. Report for European Forum on Nature Conservation and Pastoralism. CC-P-504.2, European Forum on Nature Conservation and Pastoralism, Derwentside, UK.

Dänhardt, J, Green, M, Lindström, Å, Rundlöf, M and Smith, H G (2010) Farmland as stopover habitat for migrating birds - effects of organic farming and landscape structure. *Oikos*, No 119, (7) pp1114-1125.

Delgado, A and Moreira, F (2000) Bird assemblages of an Iberian cereal steppe. *Agriculture Ecosystems and Environment*, No 78, (1) pp65-76.

Dover, J, Spencer, S, Collins, S, Hadjigeorgiou, I and Rescia, A (2011) Grassland butterflies and low intensity farming in Europe. *Journal of Insect Conservation*, No 15, (1) pp129-137.

DVL and NABU (2009) Integration naturschutzfachlich wertvoller Flächen in die Agrarförderung [Integration of high nature value areas into agricultural subsidy system]. Fallstudien zu den Auswirkungen der Agrarreform. DVL-Schriftenreihe Heft 16. Ansbach, Deutschland, Deutscher Verband für Landschaftspflege (DVL) e.V. & Naturschutzverbund Deutschland (NABU-Bundesverband). Landschaft als Lebensraum.

Ecologic (2006a) *Case Study Summary: Idiazabal*. Ecologic, Berlin.

Ecologic (2006b) *Case Study 'Diepholzer Moorschnucke' (Diepholz moor sheep)*. Institut fur Internationale und Europaische Umweltpolitik, Berlin.

EEA (2010) *EU 2010 Biodiversity Baseline*. EEA Technical Report No 12/2010, European Environment Agency, Copenhagen.

ENRD (2010) *Semi-subsistence farming in Europe: concepts and key issues*. Background paper prepared for the seminar "Semi-subsistence farming in the EU: Current situation and future prospects" Sibiu, Romania, 21st - 23rd April 2010. European Network for Rural Development, Brussels.

Eriksson, M O G (2008) *Management of Natura 2000 Habitats: 6450 Northern Boreal alluvial meadows*. Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. Technical Report 2008 18/24, European Commission, Brussels.

European Commission (2003) *LIFE and agri-environment supporting Natura 2000. Experience from the LIFE programme*. European Union, Luxembourg.

European Commission (2009) *Peak Performance. New insights into mountain farming in the European Union*. Commission Staff Working Document, SEC (2009) 1724 FINAL, 16.12.2009, European Commission, Brussels.

European Commission (2010a) *Report from the Commission to the European Parliament and the Council on the application of the Farm Advisory System as defined in Article 12 and 13 of Council Regulation (EC) No 73/2009*. COM(2010)665, 15.11.2010a, European Commission, Brussels.

European Commission (2010b) *Commission Staff Working Document Consolidated Profile. Accompanying document to the report from the Commission to the Council and the European Parliament. The 2010 assessment of implementing the EU Biodiversity Action Plan*. SEC, SEC(2010)1163 final, 8.10.2010b, European Commission, Brussels.

European Commission (2011) *Commission working paper on financing Natura 2000. Investing in Natura 2000: Delivering benefits for nature and people*. SEC(2011) 1573 final, 12.12.2011, European Communities,

European Commission (2013a) Rural Development in the European Union - Statistical and Economic Information - Report 2013.. European Commission DG Agriculture and Rural Development. Available at: http://ec.europa.eu/agriculture/statistics/rural-development/2013/full-text_en.pdf

European Commission (2013b) Interpretation Manual of European Union Habitats - EUR28. Natura 2000. European Commission, Brussels.

Farmer, A (ed) (2011) *Manual of European Environmental Policy.* 1st edition ed. Taylor and Francis, London.

Figeczky, G, Leitao, D, Martini, M, Postulka, Z, Ratarova, V, Veistola, T and Dossche, V (2010) *What changes are needed? The implementation of EU's rural development policy*. FERN, Brussels.

Firbank, L G, Petit, S, Smart, S, Blain, A and Fuller, R J (2008) Assessing the impacts of agricultural intensification on biodiversity: a British perspective. *Philosophical Transactions of the Royal Society of London.Series B: Biological Sciences*, No 363, (1492) pp777-787.

Franks, J and Mc Gloin, A (2007) Environmental co-operatives as instruments for delivering across-farm environmental and rural policy objectives: Lessons for the UK. *Journal of Rural Studies*, No 23, (4) pp472-489.

Gantioler, S, Rayment, M, Bassi, S, Kettunen, M, McConville, A J, Landgrebe, R, Gerdes, H and ten Brink, P (2010) *Costs and Socio-Economic Benefits associated with the Natura 2000 Network*. Final Report to the European Commission, DG Environment on Contract ENV.B.2/SER/2008/0038, Institute for European Environmental Policy / GHK / Ecologic, Brussels.

García-González, R (2008) *Management of Natura 2000 Habitats: 6170 Alpine and subalpine calcareous grasslands*. Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. Technical Report 2008 11/24, European Commission, Brussels.

Geiger, F, Bengtsson, J, Berendse, F, Weisser, W W, Emmerson, M, Morales, M B, Ceryngier, P, Liira, J, Tscharntke, T, Winqvist, C, Eggers, S, Bommarco, R, Pärt, T, Bretagnolle, V, Plantegenest, M, Clement, L W, Dennis, C, Palmer, C, Oñate, J J, Guerrero, I, Hawro, V, Aavik, T, Thies, C, Flohre, A, Hänke, S, Fischer, C, Goedhart, P W and Inchausti, P (2010) Persistent negative effects of pesticides on biodiversity and biological control potential on European farmland. *Basic and Applied Ecology*, No 11, (2) pp97-105.

Gibson, D J (2009) *Grasses and Grassland Ecology.* Oxford University Press, Oxford.

Gilbert-Norton, L, Wilson, R, Stevens, J R and Beard, K H (2010) A meta-analytic review of corridor effectiveness. *Conservation Biology*, No 24, (3) pp660-668.

Goßler, P (2009) *Integration von Landwirtschaft und Naturschutz: Das Modellvorhaben "Partnerbetrieb Naturschutz" Rheinland-Pfalz*. Trierer Arbeitsbericht zur Stadt- und Wirtschaftsgeographie 3. Kultur- und Regionalgeographie, Universität Trier, Germany.

Grodzinska-Jurczak, M and Cent, J (2011) Expansion of nature conservation areas: problems with Natura 2000 implementation in Poland? *Environmental Management*, No 47, (1) pp11-27.

Güthler, W and Oppermann, R (2005) *Agrarumweltprogramme und Vertragsnaturschutz weiter entwickeln*. Mit der Landwirtschaft zu mehr Natur: Ergebnisse des F+E-Projektes. Heft 13, Bundesamt für Naturschutz, Bonn - Bad Godesberg.

Hart, K and Baldock, D (2011) *Greening the CAP: Delivering Environmental Outcomes through Pillar One*. Institute for European Environmental Policy, London.

Hart, K, Rayment, M and Lee, H (2010) *Achieving a Transition Away from CAP Direct Payments*. Paper prepared by IEEP for the Land Use Policy Group, Institute for European Environmental Policy and LUPG, London.

Haughton, A J, Bell, J R, Boatman, N D and Wilcox, A (2001) The effect of the herbicide glyphosate on non-target spiders: Part II. Indirect effects on *Lepthyphantes tenuis* in field margins. *Pest Management Science*, No 57, (11) pp1037-1042.

Holden, J, Chapman, P J and Labadz, J C (2004) Artificial drainage of peatlands: hydrological and hydrochemical processes and wetland restoration. *Progress in Physical Geography*, No 28, (1) pp95-123.

Holden, J, Shotbolt, L, Bonn, A, Burt, T P, Chapman, P J, Dougill, A J, Fraser, E D G, Hubacek, K, Irvine, B, Kirby, M J, Reed, M S, Prell, C, Stagl, S, Stringer, L C, Turner, A and Worrall, F (2007) Environmental change in moorland landscapes. *Earth-Science Reviews*, No 82, pp75-100.

Houston, J A (2008) *Management of Natura 2000 Habitats: 2190 Humid dune slacks*. Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. Technical Report 2008 05/24, European Commission, Brussels.

Humbert, J Y, Ghazoul, J and Walter, T (2009) Meadow harvesting techniques and their impacts on field fauna. *Agriculture, Ecosystems & Environment*, No 130, (1-2) pp1-8.

ICNB (2006) *Plano Sectorial da Rede Natura 2000*. Instituto da Conservação da Natureza e da Biodiversidade, Lisbon, Portugal.

IEEP and Veenecology (2005) *Land abandonment, biodiversity and the CAP*. Outcome of an international seminar in Sigulda, Latvia, 7-8 October 2004. Institute for European Environmental Policy, London / Brussels.

IEEP & Alterra (2010) *Reflecting environmental land use needs into EU policy: preserving and enhancing the environmental benefits of "land services": soil sealing, biodiversity corridors, intensification / marginalisation of land use and permanent grassland*. Final report to the European Commission, DG Environment on Contract ENV.B.1/ETU/2008/0030. Institute for European Environmental Policy, London.

INTERREG IVC SURF Nature project (2011) *European Regional Development Funding for biodiversity*. An analysis of selected operational programmes. INTERREG IVC, Vienna, Berlin.

IUCN (2012) IUCN European Red List of Threatened Species. Version 2012.2. http://www.iucnredlist.org/initiatives/europe

Keenleyside, C and Tucker, G M (2010) *Farmland Abandonment in the EU: an Assessment of Trends and Prospects*. Report for WWF. Institute for European Environmental Policy, London.

Keenleyside, C, Allen, B, Hart, K, Menadue, H, Stefanova, V, Prazan, J, Herzon, I, Clement, T, Povellato, A, Maciejczak, M and Boatman, N D (2012) *Delivering environmental benefits through entry-level agri-environment schemes in the EU*. Report Prepared for DG Environment, Project ENV.B.1/ETU/2010/0035. Institute for European Environmental Policy, London.

Kettunen, M, Terry, A, Tucker, G M and Jones, A (2007) *Guidance on the maintenance of landscape connectivity features of major importance for wild flora and fauna. Guidance on the implementation of Article 3 of the Birds Directive (79/409/EEC) and Article 10 of the Habitats Directive (92/43/EEC)*. Institute for European Environmental Policy, Brussels / London.

Kettunen, M, Baldock, D, Gantioler, S, Carter, O, Torkler, P, Arroyo Schnell, A, Baumueller, A, Gerritsen, E, Rayment, M, Daly, E and Pieterse, M (2011) *Assessment of the Natura 2000 co-financing arrangements of the EU financing instrument*. A project for the European Commission - final report. 138 pp. + Annexes, Institute for European Environmental Policy, Brussels, Belgium.

Keulartz, J (2009) European nature conservation and restoration policy – problems and perspectives. *Restoration Ecology*, No 17, (4) pp446-450.

King, M (2010) *An investigation into policies affecting Europe's semi-natural grasslands*. A report by the Grasslands Trust. European Forum on Nature Conservation and Pastoralism; European Commission (DG Environment), Derwentside, UK.

Kristensen, L and Primdahl, J (2006) *The Relationship Between Cross Compliance and Agri-environment Schemes*. A Research Paper of the Cross Compliance Network, Institute for European Environmental Policy, London.

Küster, H and Keenleyside, C (2009) The origin and use of agricultural grasslands in Europe, in P Veen, R Jefferson, J de Smidt, & ven der Straaten (eds) *Grasslands in Europe of High Nature Value,* pp9-14. KNNV Publishing, Zeist, The Netherlands.

Lemus, J A, Bravo, C, García-Montijano, M, Palacín, C, Ponce, C, Magaña, M and Alonso, J C (2011) Side effects of rodent control on non-target species: Rodenticides increase parasite and pathogen burden in great bustards. *Science of the Total Environment*, No 409, (22) pp4729-4734.

Louette, G, Adriaens, D, Adriaens, P, Anselin, A, Devos, K, Sannen, K, Van Landuyt, W, Paelinckx, D and Hoffmann, M (2011) Bridging the gap between the Natura 2000 regional conservation status and local conservation objectives. *Journal for Nature Conservation*, No 19, (4) pp224-235.

Mantino, F (2011) *Developing a territorial approach for the CAP*. A discussion paper. Institute for European Environmental Policy, London.

Marhoul, P and Olek, M (2010) *Action Plan for the Conservation of the Danube Clouded Yellow Colias myrmidone in the European Union*. Species Action Plan. EUSAP, European Commission, Brussels.

Middleton, B, Grootjans, A P, Jensen, K, Venterink, H O and Margóczi, K (2006) Fen Management and Research Perspectives: An Overview. Bobbink, R, Beltman, B, Verhoeven, JTA, and Whigham, DF. Wetlands. Functioning, Biodiversity Conservation, and Restoration. [191], 247-268. New York, Springer-Verlag. ECOLOGICAL STUDIES.

Morris, A J, Wilson, J D, Whittingham, M J and Bradbury, R B (2005) Indirect effects of pesticides on breeding yellowhammer (*Emberiza citrinella*). *Agriculture Ecosystems and Environment*, No 106, (1) pp1-16.

Nitsch, H (2006) *MEACAP WP5 Case study on genetic resources in food and agriculture*. Dissemination level: non-public. 6th Framework Programme SPECIFIC TARGETED RESEARCH PROJECT n°SSPE-CT-2004-503604, http://www.ieep.org.uk/assets/602/WP5_Case_study_GenRes_Sept_06_final_pdf.pdf.

Nitsch, H, Osterburg, B, Roggendorf, W and Laggner, B (2012) Cross compliance and the protection of grassland - Illustrative analyses of land use transition between permanent grassland and arable land in German regions. *Land Use Policy*, No 29, (2) pp440-448.

Oñate, J J, Atance, I, Bardají, I and Llusia, D (2007) Modelling the effects of alternative CAP policies for the Spanish high-nature value cereal-steppe farming systems. *Agricultural Systems*, No 94, (2) pp247-260.

Oppermann, R (2009) *Common Agricultural Policy: Cross-compliance and the Effects on Biodiversity*. Results of a research project and recommendations for the further development of the agricultural policy. R Oppermann (ed), Institut für Agrarökologie und Biodiversität (IFAB), Mannheim, Germany.

Oppermann, R and Spaar, R (2003) Artenreiches Grünland - Lebensraum für Wiesenbrüter, in R Oppermann & H U Gujer (eds) *Artenreiches Grünland Bewerten Und Fördern,* pp128-133. Verlag Eugen Ulmer, Stuttgart.

Oppermann, R, Beaufoy, G and Jones, G (eds) (2012) *High Nature Value Farming in Europe. 35 European Countries - Experiences and Perspectives.* verlag regionalkultur, Ubstadt-Weiher.

Orbicon, Écosphère, ATECMA, Ecosystems LTD (2009) *How species conservation can be supported through rural development programmes: Good practice examples*. Wildlife and sustainable farming and the Birds and Habitats Directives. Orbicon, Ecosphere, ATECMA, & Ecosystems LTD (eds), Wildlife and Sustainable Farming Initiative, Brussels.

Osterburg, B, Isermeyer, F, Lassen, B and Röder, N (2010) Impact of economic and political drivers on grassland use in the EU, in *Grassland Science in Europe,* pp14-28. Grassland in a Changing World: 23rd General Meeting of the European Grassland Federation, 29.8.2010, Kiel, Germany. European Grassland Federation, Göttingen.

Papanikolaou, A D, Fyllas, N M, Mazaris, A D, Dimitrakopoulos, P G, Kallimanis, A S and Pantis, J D (2011) Grazing effects on plant functional group diversity in Mediterranean shrublands. *Biodiversity and Conservation*, No 20, (12) pp2831-2843.

Pardini, A and Nori, M (2011) Agro-silvo-pastoral systems in Italy: integration and diversification. *Pastoralism: Research, Policy and Practice*, No 1, (1) 26.

Pitts, E, O'Grady, S and Wimmer, H (2010) *The implementation of the "Health Check" of the CAP in the Member States, in particular with regard to the new articles 68 and 69 of*

Regulation (EC) n° 73/2009. DG for Internal Policies, Directorate B: Structural and Cohesion Policy. Report for the European Parliament's Committee on Agriculture and Rural Development, European Parliament, Bruxelles.

Poláková, J, Tucker, G M, Hart, K, Dwyer, J and Rayment, M (2011) *Addressing biodiversity and habitat preservation through Measures applied under the Common Agricultural Policy*. Report prepared for DG Agriculture and Rural Development, Contract No. 30-CE-0388497/00-44, Institute for European Environmental Policy, London.

Rauschmayer, F, van den Hove, S and Koetz, T (2009) Participation in EU biodiversity governance: how far beyond rhetoric? *Environment and Planning C: Government and Policy*, No 27, (1) pp42-58.

Reed, M S, Bonn, A, Slee, W, Beharry-Borg, N, Birch, J, Brown, I, Burt, T P, Chapman, D, Chapman, P J, Clay, G D, Cornell, S J, Fraser, E D G, Glass, J H, Holden, J, Hodgson, J A, Hubacek, K, Irvine, B, Jin, N, Kirkby, M J, Kunin, W E, Moore, O, Moseley, D, Prell, C, Price, M F, Quinn, C H, Redpath, S, Reid, C, Stagl, S, Stringer, L C, Termansen, M, Thorp, S, Towers, W and Worrall, F (2009) The future of the uplands. *Land Use Policy*, No 26, (Supplement 1) S204-S216.

Riccheri, M (2006) *Report for Case Study "Arroz de Valencia"*. Universidad de Alicante, Alicante.

Rochon, J J, Duval, M and Goby, J P (2009) Effects on the environment of a flock of sheep when free ranging or under the guidance of a shepherd. *Options Méditerranéennes Series A*, No A85, (http://ressources.ciheam.org/om/pdf/a85/00800985.pdf)

RSPB and Birdlife International (2011) *Seeds of Success: How agri-environment can yield results for nature and farming*. BirdLife International, Cambridge, UK.

Sánchez-Barbudo, I, Camarero, P R and Mateo, R (2012) Primary and secondary poisoning by anticoagulant rodenticides of non-target animals in Spain. *Science of the Total Environment*, No 420, pp280-288.

Šefferová, S V, Šeffer, J and Janák, M (2008a) *Management of Natura 2000 Habitats: 7230 Alkaline fens*. Technical Report 2008 20/24, European Commission, Brussels.

Šefferová, S V, Janák, M and Ripka, J (2008b) *Management of Natura 2000 Habitats: 1530 *Pannonic salt steppes and salt marshes*. Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. Technical Report 2008 03/24, European Commission, Brussels.

SEO and Birdlife International (2011) *A New Management Model for SPAs: La Serena and its foothills (2001-2004). Alternative agricultural management compatible with environmental protection*. LIFE00NAT/E/7327, Sociedad Española de Ornitología / BirdLife International, Madrid.

Smith, H, Dänhardt, J, Lindström, Å and Rundlöf, M (2010) Consequences of organic farming and landscape heterogeneity for species richness and abundance of farmland birds. *Oecologia*, No 162, (4) pp1071-1079.

Stoate, C, Báldi, A, Beja, P, Boatman, N D, Herzon, I, van Doorn, A, de Snoo, G R, Rakosy, L and Ramwell, C (2009) Ecological impacts of early 21st century agricultural change in Europe – A review. *Environmental Management*, No 91, (1) pp22-46.

Temple, H J and Cox, N A (2009) *European Red List of Reptiles*. Office for Official Publications of the European Communities, Luxembourg.

TEEB (2011) *The Economics of Ecosystems and Biodiversity in National and International Policy Making.* ten Brink, P (ed) Earthscan, London and Washington.

Van der Wal, R, Bonn, A, Monteith, D, Reed, M, Blackstock, K, Hanley, N, Thompson, D, Evans, M and Alonso, I (2011) Chapter 5: Mountains, Moorlands and Heaths, in UK NEA (ed) *The UK National Ecosystem Assessment Technical Report,* UNEP-WCMC, Cambridge.

Vassilev, K, Pedashenko, H, Nikolov, S C, Apostolova, I and Dengler, J (2011) Effect of land abandonment on the vegetation of upland semi-natural grasslands in the Western Balkan Mts., Bulgaria. *Plant Biosystems*, No 145, (3) pp654-665.

Verhulst, J, Kleijn, D and Berendse, F (2007) Direct and indirect effects of the most widely implemented Dutch agri-environment schemes on breeding waders. *Journal of Applied Ecology*, No 44, (1) pp70-80.

Vickery, J A, Tallowin, J R, Feber, R E, Asteraki, E J, Atkinson, P W, Fuller, R J and Brown, V K (2001) The management of lowland neutral grasslands in Britain: effects of agricultural practices on birds and their food resources. *Journal of Applied Ecology*, No 38, (3) pp647-664.

Whittingham, M J (2007) Will agri-environment schemes deliver substantial biodiversity gain, and if not why not? *Journal of Applied Ecology*, No 44, (1) pp1-5.

Worrall, F, Evans, M G, Bonn, A, Reed, M S, Chapman, D and Holden, J (2009) Can carbon offsetting pay for upland ecological restoration? *Science of the Total Environment*, No 408, (1) pp26-36.

WWF and IEEP (2009) *Innovative use of EU funds to finance management measures and activities in Natura 2000 sites*. Output of the project Financing Natura 2000: Cost estimate and benefits of Natura 2000. Final report. Output of the EC project Contract No. 070307/2007/484403/MAR/B2, WWF, Brussels, Belgium.

Zechmeister, H G, Schmitzberger, I, Steurer, B, Peterseil, J and Wrbka, T (2003) The influence of land-use practices and economics on plant species richness in meadows. *Biological Conservation*, No 114, (2) pp165-177.

Zemekis, R, Krisciukaitiene, I, Kuliesis, G and Galnaityte, A (2007) *Review of payment calculations in animal welfare measures (215)*. SIXTH FRAMEWORK PROGRAMME SPECIFIC TARGETED RESEARCH PROJECT n° SSPE-CT-2006-044403.

Zimmermann, P, Tasser, E, Leitinger, G and Tappeiner, U (2010) Effects of land-use and land-cover pattern on landscape-scale biodiversity in the European Alps. *Agriculture, Ecosystems and Environment*, No 139, (1-2) pp13-2.

LIST OF ACRONYMS

ACRONYM	FULL TEXT
ANC	Area of Natural Constraint (previously LFA)
BPS	Basic Payment Scheme
CAP	Common Agricultural Policy
CLC	CORINE Land Cover
CMEF	Common Monitoring and Evaluation Framework
EAFRD	European Agricultural Fund for Rural Development
EAGF	European Agricultural Guarantee Fund
EFA	Ecological Focus Area
ERDF	European Regional Development Fund
ESF	European Social Fund
ESI Funds	European Structural and Investment Funds
FAS	Farm Advisory System
FCS	Favourable Conservation Status
GAEC	Good Agricultural and Environmental Condition
HNV	High Nature Value farming
IACS	Integrated Administration and Control System
LAG	Local Action Group (under Leader)
LFA	Less Favoured Area (now ANC)
LIFE	EU Financial Instrument for the Environment
LPIS	Land Parcel Information System
LULUCF	Land Use, Land Use Change and Forestry
NGO	Non-governmental organisation
PAF	Prioritized Action Framework
PDO	Protected Designation of Origin product
PES	Payments for Ecosystem Services schemes
RDP	Rural Development Programme
SAC	Special Area of Conservation
SAPS	Single Area Payment Scheme
SCI	Special Area of Conservation Interest
SEA	Strategic Environmental Assessment
SME	Small & medium-sized enterprise
SMR	Statutory Management Requirement
SPA	Special Protected Area
SPS	Single Payment Scheme
UAA	Utilized Agricultural Area

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