Improving the targeting, monitoring and management of semi-natural grasslands across Europe – essential steps to achieving EU Biodiversity Strategy targets on farmland.

December 2012

Paper by Sue Collins, European Forum for Nature Conservation and Pastoralism (EFNCP) and Butterfly Conservation Europe and Guy Beaufoy (EFNCP).

Case Study Authors

Western Fermanagh, Northern Ireland by Patrick McGurn, EFNCP;

The Burren, Ireland by James Moran, Sligo Institute of Technology and Patrick McGurn, EFNCP;

Swedish Baltic Coast by Tommy Lennartsson, Swedish University of Agricultural Sciences;

The Vogelsberg Mountains, Germany by Benjamin Hill, EFNCP;

Regional Declines in butterflies associated with semi natural grasslands in **Southern Sweden**, by Sven G Nilsson, Markus Franzen, and Lars Pettersson, Lund University, Sweden

Eastern Hills of Cluj, Transylvania, Romania by Inge Paulini University of Bonn, Marius Barbos, Monica Beldean, Vasile Rus, Emilia Stoianov, Natalia Timus, Mozaic Association and Babes-Bolyai-University, Cluj-Napoca, Romania**;**

An Introduction to Turkey's Steppes by Didem Ambarll, Evrim Kara cetin, Hilary Welch, Geoff Welch, DKM;

The Po river Valley by Simona Bonelli & Emilio Balletto, University of Turin;

The **Wet grasslands of Lake Mikri, Prespa, NW Greece**
by Yannis E. Kazoglou, Municipality of Prespa, Michael S. Vrahnakis, Technological Educational Institute of Larisa and George P. Fotiadis, Technological Educational Institute of Kavala, Greece;

Grasslands and their butterflies in the **Orseg Special Protection Area (SPA), Hungary** by Szabolcs Safian, University of Western Hungary and Istvan Szentirmai, Orseg National Park Directorate, Hungary;

Csik Mountain haymeadows, Pogony–havas region, Romania by Laszlo Demeter, Sapientia University, Romania.

Executive Summary

1. The EU has ambitious 2020 targets for conserving habitats and species and for maintaining and restoring ecosystems and their services under the EU Biodiversity Strategy.

2. Semi-natural grasslands (including grazed wood pastures) are the most important farmland for the Biodiversity Strategy, and merit special attention from EU policy.

3. They make up 100% of Habitats Directive farmland habitats and 20% of all Habitats Directive habitats. They harbour the majority of EU farmland biodiversity, the majority of EU farmland carbon, and provide the majority of water catchment services on farmland. They make up the majority of High Nature Value farmland in the EU.

4. Currently available data indicate that semi-natural grasslands are declining in extent and condition, and are in a worse state than other EU habitat types. According to Member States' reports, the dominant driver of this at EU level is the decline of low-intensity pastoral farming resulting in the abandonment of sustainable farming of semi-natural grassland. In addition, in some localities grassland intensification, afforestation or urbanisation are causing losses.

5. Prevention of further losses in the extent and condition of semi-natural grassland ecosystems, including through reforms to the CAP rules and the way CAP monies are targeted, is the central challenge for the EU Biodiversity Strategy in relation to farmland. With the move to hectare payments and the introduction of new payment eligibility rules linked to vegetation types, the CAP has become increasingly biased *against* semi-natural pastures by penalising characteristics that are typical of them, such as a high proportion of shrubs, trees, seasonal flooding and other landscape features. This tendency has become more severe since 2009 due to pressure from the EU Court of Auditors to ensure that CAP funds are not spent on farmland that does not comply strictly with CAP rules. Not only are the rules poorly adapted to semi-natural pastures, but also the interpretation of the rules by auditors is often unfairly biased against extensive grazing systems. See EFNCP Pastures and Meadows Seminar Report 2012 http://www.efncp.org/download/EFNCP_Permanent-Pastures-and-Meadows.pdf

6. The CAP neither protects semi-natural grasslands from intensification, nor does it provide consistent support against abandonment through direct payments. In this regard the CAP is going in the *opposite* direction from environmental policies. There is a clear absence of joined-up EU policy, and crucially the CAP apparently is in direct conflict with a range of environmental goals, rather than supporting them. This is a big problem for securing effective implementation of the EU 2020 Biodiversity Strategy targets.

7. In order to respond effectively to the decline of semi-natural grasslands through targeted policy measures, more robust data systems are needed to record their extent, location and condition. Data are also needed on trends in land use (especially farming) that are driving the loss of grassland habitats and ecosystem services, and the most effective actions needed to safeguard grassland ecosystems and restore their quality, characteristic biodiversity and ecosystem services.

8. Furthermore, for the EU Biodiversity targets to be meaningful, policy tools must be available and used to check progress towards their achievement. Whilst there is an EU Biodiversity Baseline, which is valuable, it does not fully reflect the state of semi-natural grasslands. Current data on semi-natural grasslands are incomplete and of highly variable quality. They do not yet constitute a robust monitoring system at EU level.

9. Improved data and monitoring systems therefore are crucial both for *measuring* achievement of the EU Biodiversity Strategy targets and for *achieving* the targets through efficiently targeted policy measures. In fact unless data and monitoring systems are improved for semi-natural grasslands, the 2020 targets as applied to them (and thus to all Habitats Directive farmland habitats) will remain largely meaningless.

10. Currently semi-natural grassland data and monitoring fall under two largely separate policy fields: 1) biodiversity data and monitoring (Streamlining European Biodiversity Indicators (SEBI), Habitats Directive Article 17 reporting, Mapping Ecosystem Services (MAES); 2) agriculture data and monitoring (Agri-environment indicators, Common Monitoring and Evaluation Framework (CMEF), Farm Structure Surveys (FSS), Land Parcel Identification System (LPIS)).

11. Semi-natural grasslands are very poorly served by all of these data and monitoring systems; fundamental improvements are needed. There must also be full integration and complementarity between the biodiversity and agricultural data systems so they can effectively evaluate the outcomes of policy implementation and action on the ground, and feed into policy development. Currently this does not happen.

12. The case studies attached to the report illustrate the types of changes to semi-natural grassland habitats and their characteristic butterflies that have taken place; and the attributes that need to be monitored in order to know what is really happening and to be able to respond effectively through policy measures and funding.

13. There is an urgent need for CAP Reform 2013 to recognise explicitly the importance of semi-natural grassland and put in place measures and funding streams (both within the Natura 2000 network and in the wider farmed landscape) to protect remaining semi-natural grassland from further losses in extent and quality.

14. The attached case studies illustrate what needs to be done. Measures are needed to support farmers to continue low-intensity farming of semi-natural grassland; to re-introduce such farming systems where they are dying out; and to implement targeted agri-environment schemes. These measures need to be rolled out consistently across the EU on a scale commensurate with the existing extent of semi-natural grassland on the ground. This is very far from being achieved at present, despite 20 years of agri-environment policy.

15. Improvements are needed to the various data and monitoring systems, specifically for semi-natural grasslands. Recommendations include: 1) Identification of semi-natural grasslands as a distinct category on data sets (CORINE, LPIS, FSS, etc.) in a consistent manner to monitor overall extent and to enable targeting of measures; 2) Sample surveys of semi-natural grassland condition; 3) Systematic transect monitoring of butterflies, alongside continued monitoring of farmland birds; and 4) Sample surveys of farming trends affecting semi-natural grassland (trends in systems and in specific farming practices).

16. The results of biodiversity and agriculture monitoring need to be brought together regularly to check progress in implementing the EU Biodiversity Strategy and CAP priorities, and to evaluate the effectiveness of agriculture policy measures in sustaining and restoring semi-natural grassland, its characteristic biodiversity and ecosystem services.

Introduction

1. The purpose of this report is to highlight the poor ecological condition of semi-natural grasslands across Europe and to reinforce, with illustrative case studies, the need for better targeted policy action to support farmers who safeguard and sustainably manage semi-natural grasslands, and for better monitoring of trends on the ground. These actions are essential if these grasslands and those who farm them are to continue to provide important ecosystem services. Improved targeting and monitoring of semi-natural grasslands are only possible if existing data systems are made fit for purpose and aligned with current policy goals. We recommend innovations in data systems, monitoring and reporting that will help to improve both targeting of measures and improve the effectiveness of tracking delivery of the EU Biodiversity Strategy targets and of environmental CAP reform.

Background

Semi-natural grassland

2. This report is concerned with a type of farmland whose importance is increasingly recognised for its ecosystem services: uncultivated, self-seeded or "semi-natural" pastures[1]. This broadly-defined category of land includes self-seeded herbaceous and shrub vegetation that is used for livestock grazing and/or mowing[2]. Such grasslands cover approximately a quarter of all EU farmland, but most are in poor condition.

3. Sustainable levels of grazing or mowing of self-seeded vegetation result in plant communities similar to natural grasslands, and generally far more diverse than sown grasslands. Because they depend on human intervention for their maintenance, they are known to ecologists as "semi-natural grasslands". They mimic the natural grasslands that existed historically (maintained by wild herbivores, fire and extreme climate conditions). Such "natural" grasslands are now very rare in the EU, being limited to specific situations (e.g. tops of mountains above the natural tree-line).

4. Semi-natural pastures may be predominantly herbaceous or may have a large proportion of shrubs (e.g. heather), and may have significant tree cover (e.g. wood pastures). In extensive grazing systems, livestock use shrub and tree vegetation both as forage and shelter. Pastures with shrubs and trees provide greater multi-functionality than purely herbaceous pastures. Although semi-natural pastures are generally quite low yielding, they provide essential forage in extensive livestock systems, especially at certain times of the year.

---

[1] The term pasture is used in this report to include meadows, as under the Common Agriculture Policy (CAP) and Farm Structural Survey (FSS) definitions.
[2] Grasslands are defined as "terrestrial ecosystems dominated by herbaceous and shrub vegetation and maintained by fire, grazing, drought and/or freezing temperatures" by White R, Murray, S and Rohweder, M. in *Pilot Analysis of Global Ecosystems: Grassland Ecosystems*. World Resources Institute Washington DC 2000

5. Semi-natural grasslands include:

- Lowland meadows and pastures including floodplain meadows

- Upland and alpine hay meadows

- Limestone grasslands including limestone pavement or Alvar

- Lowland acid grassland and heathland

- Steppe grassland

- Alpine and other montane rangelands

- Mediterranean scrub/grassland mosaic such as Phrygana, Garrigue, Maquis and Matorral.

- Boreal grasslands

- Wooded grasslands such as Baltic wooded meadows, Dehesa, wood-pasture.

- Maritime grasslands of dune, cliff and machair

6. Semi-natural pastures are of exceptional environmental value compared with cultivated grasslands. For example, they support the majority of EU farmland biodiversity, the majority of EU farmland carbon, and provide the majority of water catchment services on farmland.

7. A number of EU Directives attempt to protect semi-natural grasslands, although at present not in a very coherent way. The EU Environmental Impact Assessment (EIA) Directive has included protection of "semi-natural land" from conversion and agricultural intensification since 1985. In July 2009, the Commission published a report on the application and effectiveness of the EIA Directive (European Commission, 2009). This showed that implementation has been deficient in many Member States. The Renewable Energy Directive (RED) aims to prevent the conversion of "highly biodiverse grasslands" to cultivation for biofuels, but has given rise to difficulties with defining and identifying this newly introduced category of grasslands, (although in practice it coincides broadly with semi-natural grasslands covered by the EIA Directive).

8. All of the farmland habitats on Annex 1 of the European Union (EU) Habitats Directive (European Union Council Directive, 1992) are semi-natural grasslands, and the aim of this Directive is to ensure they are maintained in a favourable conservation status. Target 2 of the Biodiversity Strategy is concerned with maintaining ecosystems and their services, especially in the form of "green infrastructure", a large proportion of which is provided by semi-natural grasslands.

9. Logically we would expect these different policies to be working together to protect and maintain semi-natural grasslands, but at present the links are not made clear in policy or in the terminology used by the different Directives, or in the EU Biodiversity Strategy. There is no joined-up policy approach for semi-natural grasslands at EU level.

EU Biodiversity Strategy and Vision for 2050

10**.** On May 3 2011, the European Commission adopted a new strategy to halt the loss of biodiversity and ecosystem services in the EU by 2020 in line with the two commitments made by EU Heads of Government in March 2010 - to halt the loss of biodiversity and the degradation of ecosystem services and to restore them, in so far as feasible, by 2020 and to reduce Europe's adverse impact on global biodiversity. (European Commission Communication, 2011). EU leaders also set out the following vision for the biodiversity and ecosystems of Europe by 2050:

"By 2050 European Union biodiversity and the ecosystems it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided"

11. The strategy is in line with the global commitments made in Nagoya in October 2010, in the context of the Convention on Biological Diversity (CBD), where world leaders adopted of a package of measures to address global biodiversity loss over the coming decade. (CBD, 2010)

EU Biodiversity targets for 2020

12. EU leaders also endorsed 3 operational targets that are particularly relevant for European grassland. These are set out in the following paragraphs.

EU Biodiversity Strategy Target 1

13. "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."

EU Biodiversity Strategy Target 2

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

EU Biodiversity Strategy Target 3A

15. "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."

(*)improvement is to be measured against the quantified enhancement targets for the conservation status of species and habitats of EU interest in Target 1 and the restoration of degraded ecosystems under target 2.

16. In the EU Biodiversity Strategy, EU Member State (MS) Ministers in the EU Council set these quantified targets, against the EU Biodiversity baseline (European Environment Agency (EEA), 2010) and committed themselves to specific actions, necessary to meet these and the overarching target. Achieving this is an integral part of EU Governments' commitment to a more resource efficient Europe, in which our natural resources are sustained and used wisely for the benefit of everyone and to underpin longterm economic and social well-being (European Commission Communication, 2011).

17. Grassland ecosystems are the most degraded of all terrestrial ecosystems in Europe. Well functioning and resilient semi-natural grassland ecosystems provide important ecosystem services and are of the utmost importance to biodiversity. They need to be an explicit priority at EU and Member State level for protection, sustainable management and restoration. Policies need to achieve these aims for semi-natural grasslands, and need to be seen to achieve these aims.

Provision of ecosystem services by semi-natural grassland

18. Semi-natural grasslands and their characteristic species deliver a number of obvious and also hidden ecosystem services of benefit to everyone. These include climate regulation through significant carbon storage in unploughed grassland; protection from natural hazards, including flood alleviation in wet meadows and wildfire prevention through grazing and browsing in forests and shrublands; pollination services; and tourism and recreation support through their contribution to landscape quality and biodiversity.

19. Estimating the value of these services is difficult and the methodologies for doing so are still developing. One recent estimate (Institute for European Environmental Policy, 2012) is that natural and semi natural grasslands in the Natura 2000 network of areas designated under the EU Habitats Directive, have an ecosystem service value of between €1,100 and €1,900 per hectare per annum. The area of such grasslands in the Natura 2000 network across the EU 27 is estimated at some 11.6 million hectares, giving a total ecosystem value of Natura 2000 grasslands of €13 billion to €22 billion per annum. Annex 1 sets out the estimated proportions of semi–natural grassland that are designated in

the Natura 2000 series. This shows that there are many more hectares of semi-natural grassland outside the Natura 2000 series as well, so the total value of semi-natural grassland across the EU will be much higher in practice. It is of considerable concern therefore that grassland losses are still being reported.

What is the current state of EU grasslands and their characteristic species?

State of semi-natural grasslands

20. According to the Food and Agriculture Organisation (FAO), the area of grasslands in the EU declined by 12.8% between 1990 and 2003. Very few Member States (MS) managed to avoid this trend. (FAO, 2006). Further losses have occurred since 2003. However, trends in extent for semi-natural grasslands are not monitored (with the exception of very few countries).

21. Analysis by the EEA, based on detailed reports from EU Member States under Article 17 of the EU Habitats Directive, paints a stark picture of the degraded state of the grassland habitats listed in Annex 1 of the EU Habitats Directive. (EEA, 2010, Article 17 Reports, EU CIRCA database). They show that agriculture ecosystems across the Natura 2000 network, particularly grasslands, and the characteristic species that depend on them, are mostly in poor or very poor condition. Habitats dependent on agriculture are in the poorest condition of all habitats, with only 7% in favourable conservation status compared with 21% on average for other habitats of EU importance. (EEA, 2010, 10 Messages for Agricultural Ecosystems). 76% of Natura 2000 grasslands are in unfavourable – inadequate or bad status; and the condition of the remaining 17% is unassessed or unknown. None of the Natura 2000 Grasslands in the Atlantic Biogeographic zone is in favourable condition.

Habitats dependant on agriculture (204 assessments)
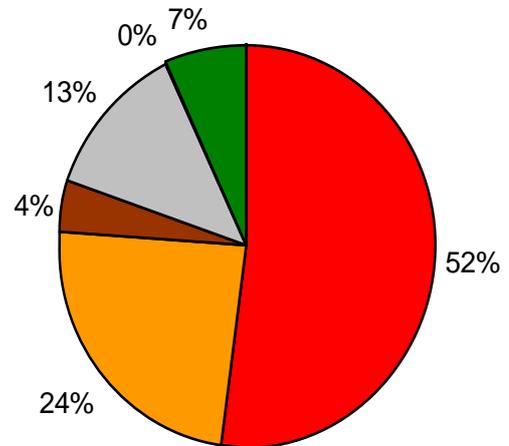
Legend:
- Unfavourable - Bad
- Unfavourable - Inadequate
- Unknown but not favourable
- Unknown
- Not assessed
- Favourable

Figure 1 - Conservation status of habitats dependent on agriculture. (EEA Report) Source: EEA 2010 Article 17 database CIRCA

Conservation status of some specific grassland types of European importance

22. None of the types of Natura 2000 semi-natural grasslands of importance for invertebrates had a favourable conservation status at EU 25 level according to MS Article 17 Reports to the EU in 2006. (This analysis excluded grasslands in Bulgaria and Romania as these countries were not part of the EU when these Article 17 Reports were made). In fact, as can by seen from the Conservation Status analysis by Biogeographic Zone, set out in Table 1 below, nearly all of these grasslands were in unfavourable – inadequate or unfavourable – bad condition. And there is some doubt as to whether the few reports of favourable condition are accurate. NB. See later discussion in this paper for EEA assessment of quality of Article 17 reporting by some EU Member States – data is missing for some Member States (particularly Spain) and some assessments are inconsistent and may not have been made on the same basis in all MS. The EEA European Topic Centre on Biodiversity (ETC BD) consider that it is probable that assessments that are currently reported as "unknown" are unlikely to be in much better conservation status than those that have been monitored.

Table 1 Conservation status of some Natura 2000 grasslands by Biogeographic zone

Grassland type and Habitats Directive Annex 1 reference number	Calcerous 6170	Nardus 6230	Steppe 6240	Steppe 6250	Molinia 6410	Lowland Hay Meadows 6510	Mountain Hay meadows 6520	Woo Past 6530
Alpine	U1	U2	U2	U2+	U2	U2/U1	U2/U1	U2
Atlantic	U2+	U2	U1	-	U2/FV	U2	U2+	-
Boreal	-	U2	-	-	U2-/FV	U2/U1/FV	U2-	U2/U
Continental	U1	U2/U1/FV	U2/U1	U2+	U2/U1	U2/U1	U2/U1	U2
Macaronesian	-	-	-	-	-	-	-	-
Mediterranean	U1/FV	U1/FV	-	-	U1/FV	U2/U1/FV	U2	-
Pannonian	-	U2	U2/U1	U2/U1	U2/U1	U2/U1	U2	-

Key to Conservation Status:
U2 = Unfavourable – Bad
U1 = Unfavourable – Inadequate
FV = Favourable
+ = Positive trend
- = Negative trend

Source : EEA 2010 Article 17 database CIRCA

23. A Report for the European Commission, based on Member States' good practice in managing Natura 2000 farmland (Concha Almeida et al, 2013, in preparation) has recently analysed the main causes of poor conservation status of Habitats Directive habitats and species, using data from Member States' Article 17 Reports. The results of this analysis show that 52% of MS assessments listed the abandonment of pastoral systems as a cause of unfavourable status, with coastal meadows, pastoral grasslands and other grasslands being most affected. Table 2 lists the threats in declining order of prevalence.

Table 2 Causes of poor grassland quality (in order of prevalence of reported Article 17 threat categories)

Threat	Threat type code	Abbreviation
Abandonment of pastoral systems	141	APS
Modification of cultivation practices	101	MCP
Fertilization	120	Fer
Unsustainable grazing practices	140	Gra
Cultivation	100	Cul

Drainage	810	Dra
Burning	180	Bur
Stock feeding	171	SF

24. The consultants also carried out an assessment of threats to key habitats and species dependant on agro-ecosystems according to scientific literature and expert reviews. They concluded that "the abandonment of extensive traditional livestock farming practices is the most important threat to key agricultural habitats". Lack of sustainable grazing or the cessation of hay cutting were the key causes of loss of grassland habitat quality across the EU. The decline in shepherded grazing has been damaging for large areas of semi natural habitats over recent decades, leading to scrub encroachment and localised over-grazing in some areas where land remains in use. Most semi natural grasslands are nutrient poor and thus very sensitive to fertilisation. This is an especially important cause of decline in the quality of species–rich *Nardus* grasslands which are very sensitive to phosphate enrichment. Most grassland habitats of European importance are also damaged by liming. Dry grasslands in central and southern Europe are particularly affected by creation or intensification of vineyards. Afforestation is a major threat on abandoned pastures and meadows. Furthermore the analysis showed that threats to species dependent on grassland largely mirror those to the habitats. (Concha Almeida et al, 2013, in preparation)

Potential for improvements in the Conservation Status of Grasslands of European Importance

25. In 2010 the EEA Topic Centre on Biodiversity carried out a detailed analysis of EU Member State Article 17 reporting of trends and assessed whether recovery was likely. The results of the ETC BD analysis for some of the grasslands that are important for invertebrates concluded that a number of habitats and species had the potential to recover to an improved conservation status (but this does need to be reviewed further to assess whether recovery is likely from an ecological perspective – it will depend on the precise reasons for the poor condition – some changes will be irreversible). The results of the ETC BD analysis for some of the grasslands that are important for invertebrates are listed in Table 3 below.

Table 3: "Grassland habitat types for which one or several assessments are likely to change from Unfavourable- inadequate to Favourable (U1 to FV) or Unfavourable – bad to Unfavourable - inadequate (U2 to U1) according to ETC/BD analysis of July 2010. A further assessment needs to be done to see whether the changes are realistic from the ecological point of view." (ETC BD, 2010)

Grassland type	Habitats Directive Code	Potential Improvement in Conservation Status
Calcareous grassland	6170	U1 to FV
Nardus	6230	U1 to FV

Dry grassland	6210	U2 to U1
Steppes	6240	U2 to U1
Lowland hay meadows	6510	U2 to U1
Mountain hay meadows	6520	U2 to U1
Limestone Pavements	8240	U2 to U1

Source: EEA European Topic Centre on Biodiversity Analysis, July 2010, (unpublished)

Lessons from semi-natural grassland case studies

26. The attached case studies illustrate both the state of some different grassland types in a number of EU Member States and in Turkey and the impact on them of various land management practices (e.g. mowing, grazing of various intensity, abandonment, cessation of hay-making, introduction of silage, drainage and ploughing). They recommend positive agricultural policy measures to improve biodiversity outcomes. They also summarise the monitoring that is undertaken and the state of characteristic butterflies that depend on each habitat. They recommend improvements to agriculture and biodiversity recording and monitoring systems and implementation which would help to track the delivery of EU biodiversity and ecosystem service recovery targets.

27. The case studies include the following:

Species rich calcareous grassland (6170) in Western Fermanagh, Northern Ireland
Species rich dry mesic grasslands (6210) in the Burren, Ireland and on the East coast of Sweden
Species rich Nardus grasslands (6230) in the Vogelsberg mountains of Hesse, Germany
Steppic habitats (6240 and 6250) in the Cluj area of Romania and in Inner Anatolia, Turkey
Molinia meadows (6410) in the Po river valley of Italy
Lowland hay meadows (6510) in the Orseg National Park in Hungary, in Western Fermanagh, Northern Ireland and in Southern Sweden
Mountain hay meadows (6520) in the Csik mountains of the Eastern Carpathians in Romania; and in the Mosaic project area in Cluj, Romania
Limestone Pavement (8240) in the Burren, Ireland

28. The case studies underline the importance of preventing further loss of remaining species-rich semi-natural grasslands to abandonment, afforestation, biofuels, intensification and urban development; the need for more financial support to farmers who manage their semi-natural grasslands extensively; the need to introduce new payments under Pillar1 of the CAP to support extensive livestock enterprises and so help stop further abandonment of semi-natural meadows; the need to ensure more funding for sustainable management of Natura 2000 sites; and the importance of action to recreate the mosaics of habitat on which a rich biodiversity depends. More funding of targeted agri-environment schemes, based on those that have been shown to deliver good results is vital. Over the next few years the patterns of farming land use across Europe and specific farming practices need to be adapted so that an interconnected mosaic of green infrastructure can be re-established across Europe's landscape. This will help recover biodiversity and ensure more resilient and well functioning ecosystems capable of sustaining delivery of essential ecosystem services on which human well-being depends.

State of species linked to Agro Ecosystems

29. Article 17 Reports show that only 3% of the species of European importance that are dependent on agro ecosystems, are in favourable conservation status. Outside the Pannonian and Boreal regions none is in favourable status. 70% are in unfavourable – inadequate (U1) or unfavourable - bad (U2) status and the condition of the remaining 27% of species are not monitored and reported as unknown. The lack of attention by Governments to securing knowledge about the condition of species populations in the Mediterranean region is particularly unacceptable, with 60% of assessments required by European law being reported in 2006 as unknown.

30. There is strong evidence from systematic monitoring of some species groups, especially butterflies and birds, that there have been serious population declines across Europe's farmed landscapes over the last few decades and that declines continue. The EU Farmland Bird Indicator and the European Grassland Butterfly Indicator - both indicators in the EU SEBI 2010 set of biodiversity headline indicators show declines. (EEA Report No 5/2010). This is a serious warning sign of the lack of integrity and resilience of Europe's grassland ecosystems and suggests that their capacity to continue to supply essential ecosystem services, on which human welfare depends, is threatened.

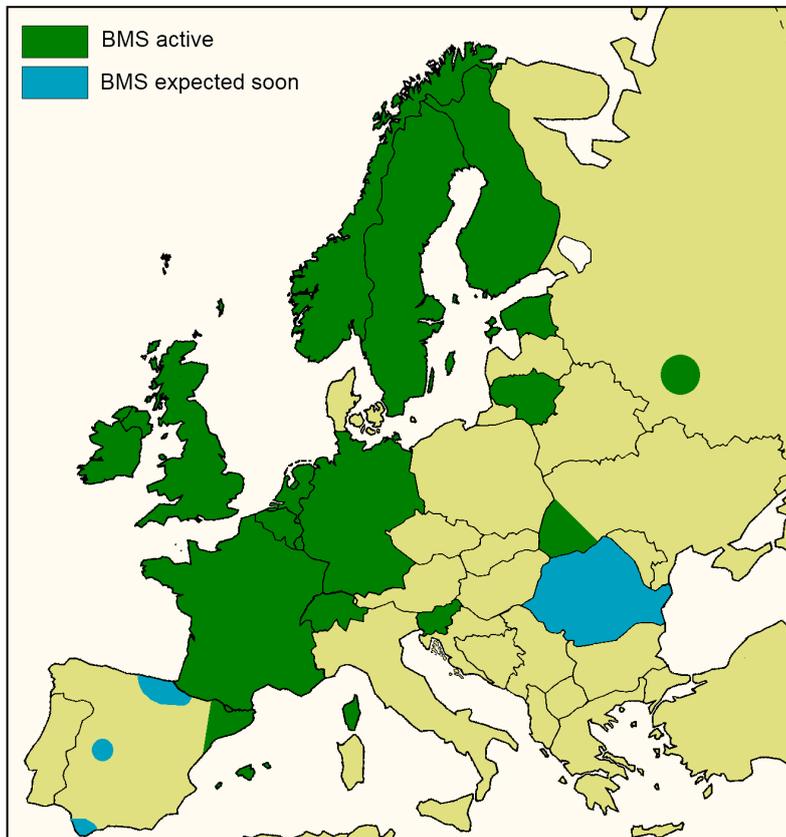**State of European Grassland Butterflies**

31. Grasslands are the main habitat for many European butterflies. Out of 436 butterfly species in Europe for which information on habitat type is available, 382 (88%) occur on grasslands in at least one country in Europe, and for more than half of the species (280 species, 57%) grassland is their main habitat (Van Swaay and Warren, 2012, BCE indicator report). Invertebrates need structural diversity, spring and summer nectar and places to shelter. Butterflies thrive in a heterogeneous landscape which includes sustainably grazed or mown semi–natural grassland, together with some areas of scrub, hedges and trees. The

adult butterflies require abundant sources of nectar and the caterpillars need specific host food plants to feed on. Pesticides, herbicides and fertilization all have a detrimental effect on butterfly habitats and reduce their reproduction and survival.

32. Unlike most other groups of insects, butterflies have considerable resonance with both the general public and decision-makers (Kühn *et al.*, 2008). They are also relatively easy to recognize and data on butterflies has been collected in some regions for a long time. This has often involved many hundreds of voluntary observers. A standard method of monitoring based on regular walks along butterfly transects has been well described, extensively tested and proven to be scientifically sound (Pollard, 1977; Pollard and Yates, 1993). This methodology has been adopted in over 19 countries to produce national trends. And the reporting of observers' results has enabled Butterfly Conservation Europe to compile a European grassland butterfly indicator.

33. Research has shown that butterflies are also valuable indicators of the state of other insect populations (Thomas, 2005). Many of these insects are important pollinators and comprise two-thirds of terrestrial biodiversity. Butterflies are therefore good indicators of the general health of the environment (Van Swaay and Warren, 2012). They belong to one of the few species groups for which Europe-wide monitoring is a practical option. The European Grassland Butterfly Index makes a good complement to the Farmland Bird Index, because butterflies are far more specific to grasslands and are more sensitive to changes in quality of these crucial habitats for biodiversity. They also operate at smaller spatial scales and are highly sensitive to changes in farming practices on grassland. Given the evidence from Article 17 monitoring of the poor state of EU grasslands it would be valuable for the EU to push for more monitoring of butterflies, systematically, across all MS, to strengthen the knowledge and understanding of trends in the extent and condition of grassland ecosystems.

34. Over many centuries Europe was rich in butterflies with many countries having abundant populations. Much of this rich biodiversity thrived till the middle of the last century as the ecological needs of butterflies and other pollinating insects were met alongside the extensive farming, forestry and land use practices that were prevalent (Van Swaay and Warren, 1999). As urbanization, industrial and intensive farming and land abandonment have increased, Europe's landscape has become the most fragmented of all the Continents on the planet. Many semi natural meadows and pastures have been lost or are now just fragments of their former selves. Severe declines in extensive farming have been accompanied by significant declines in butterfly populations.

Map showing countries with active and planned Butterfly Monitoring Schemes (from Van Swaay and Warren, 2012)

Countries contributing their data to the European Grassland Butterfly Indicator:
Andorra (part of the Catalan scheme): since 2004
Belgium (Flanders): since 1991
Estonia: since 2004
Finland: since 1999
France: since 2005 (Doubs area 2001-2004)
Germany: since 2005 (Nordrhein-Westfalen since 2001, Pfalz-region for P. nausithous since 1989)
Ireland: since 2007
Jersey: 2004-2009
Lithuania: since 2009
Luxemburg: since 2010
Norway: since 2009 (not used in indicator)
Portugal:1998-2006
Romania: starting up
Russia - Bryansk area: since 2009
Slovenia: since 2007
Spain (Catalonia: since 1994, Basque Country and Andalusia have some established monitoring, small pilot scheme in Extremadura)
Sweden: since 2010
Switzerland: since 2003 (Aargau since 1998)
The Netherlands: since 1990
Ukraine (Transcarpathia): since 1990
United Kingdom: since 1976

35. The butterfly indicator shows that since 1990, European grassland butterfly populations have declined by over 50%, indicating a dramatic loss of grassland biodiversity. See figure 2 below. This also means the situation has not improved since the previous version of the indicator.
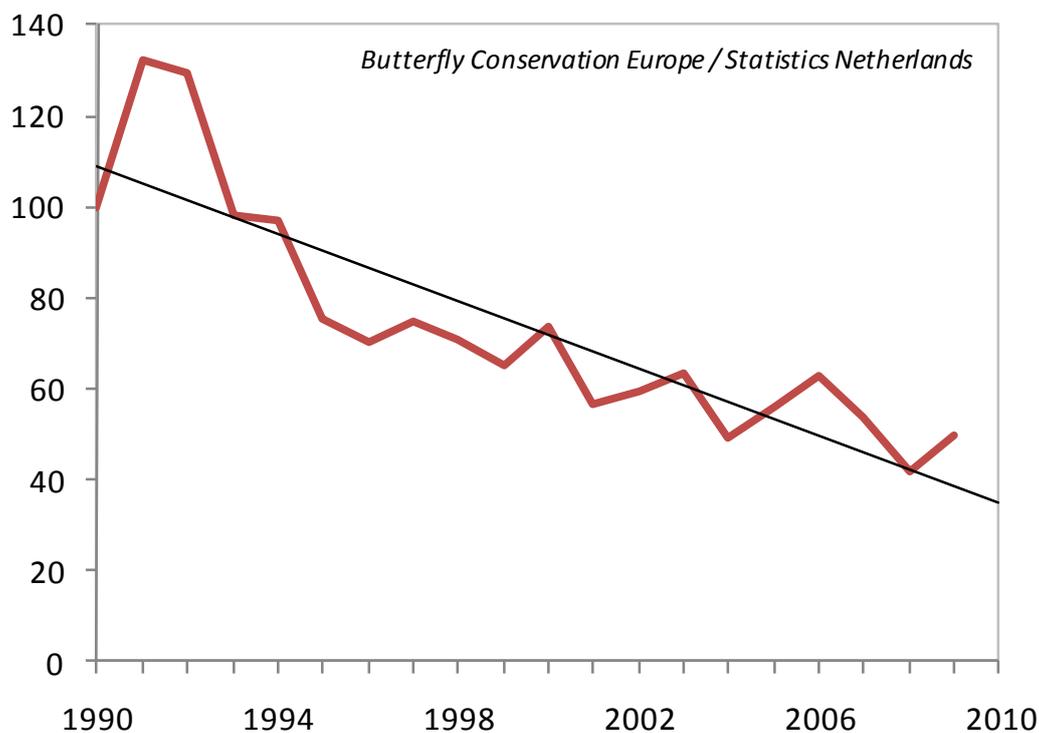
Figure 2. The European Grassland Butterfly Indicator shows a serious decline in butterfly populations of over 50% in 20 years (Van Swaay, et al., 2010)

36. The seventeen grassland butterfly species that make up the indicator are listed in Annex 2; of these ten have declined in Europe and two have remained stable. For the other five species the trend is uncertain. The main drivers behind the decline of grassland butterflies are the changes in rural land use: agricultural intensification where the land is relatively flat and easy to cultivate; abandonment in mountains and wet areas; afforestation of semi-natural pastures mainly with CAP subsidy; and increasing urbanization. In the light of the EEA analysis of the potential for grassland recovery this decade, BCE has identified targets for grassland butterfly recovery. These are summarised in Annex 3. BCE has also issued guidance on land management for butterflies (Van Swaay et al, 2010). An extract with generic guidelines is attached at Annex 4. There has been much research into the relationship between socio economic factors, farming practices and the effects on biodiversity. EFNCP recently published a book with case studies on HNV farming in 35 European countries documenting the drivers of the decline in low intensity farming and

their effects (Oppermann R, Beaufoy G, Jones, G, 2012). With appropriate incentives and sustainable land management of semi-natural grasslands BCE's Habitats Directive Butterfly Recovery targets could be met and the actions would contribute to achieving the EU Biodiversity Strategy target 3A and the EU's overall headline target for biodiversity and ecosystem service recovery by 2020.

Improvements and more coherence needed in the definition and identification of semi-natural grassland in EU Directives and CAP regulations and in the way EU CAP tools identify, monitor and support the management of semi natural grassland

37. At the moment there is no effective link at farm level between semi-natural grassland and agricultural policy. For EU policies concerned with biodiversity and ecosystem services, it is essential to recognise semi-natural grassland as a particular type of farmland, and to ensure that it is appropriately protected and targeted for support under the EU Common Agriculture Policy (CAP). A greener CAP that is focused on public goods should recognise the importance of semi-natural pastures, and give them special support and special protection.

38. However, at present the CAP does not recognise the *existence* of semi-natural pastures, or that there is any difference between cultivated and uncultivated grasslands. They are lumped together without distinction in the single category of "permanent pastures". Despite their special characteristics and environmental importance, there is no specific CAP category for semi-natural pastures, no specific cross-compliance requirements, and no mention of them in the proposed "greening" mechanisms for post-2014.

39. In fact, with the move to hectare payments and the introduction of new payment eligibility rules linked to vegetation types, the CAP has become increasingly biased *against* semi-natural pastures by penalising characteristics that are typical of them, such as a high proportion of shrubs, trees, seasonal flooding and other landscape features. This tendency has become more severe since 2009 due to pressure from the EU Court of Auditors to ensure that CAP funds are not spent on farmland that does not comply strictly with CAP rules. Not only are the rules poorly adapted to semi-natural pastures, but also the interpretation of the rules by auditors is often unfairly biased against extensive grazing systems. See http://www.efncp.org/download/EFNCP_Permanent-Pastures-and-Meadows.pdf

40. Thus the CAP has become *increasingly* unfavourable to semi-natural grasslands. It neither offers them protection from intensification, nor does it provide consistent support against abandonment through direct payments. In this regard the CAP is going in the *opposite* direction from environmental policies. Though the CAP claims to support "multi-functional" agriculture, it is very unsupportive of the type of farmland that is most multi-functional. Overall, for semi-natural pastures there is a clear absence of joined-up EU policy, and crucially the CAP apparently is in direct conflict with a range of environmental goals, rather than supporting them.

41. This is a big problem for securing effective implementation of the EU 2020 Biodiversity Strategy targets. For Habitats Directive grasslands, abandonment is a major threat to their quality and providing consistent support from CAP direct payments to extensive farmers of such grassland is essential.

Semi natural grassland needs to be identified specifically in the EU Land Parcel Identification System (LPIS)

42. For the EIA Directive and RED, a major hindrance to effective implementation is that semi-natural land and highly biodiverse grasslands (very largely overlapping) are not recorded on databases so their agricultural conversion or intensification is difficult to control. Although integration between these Directives and CAP cross-compliance would make for more joined-up policy and more effective implementation, this link is not made at EU level, and in fact is seen by parts of the Commission services as "duplication" whereas we would see it as a good example of policy integration (in fact in the UK the EIA Directive requirements are incorporated in GAEC).

43. The way in which the CAP lumps all permanent pastures together in one category is a peculiarity of this EU policy, which puts it at odds with most agronomic and statistical categorisations of grasslands. The basic difference between cultivated and uncultivated grasslands has always been recognised in data systems such as FAO and the EU Farm Structures Survey (FSS). So why not in the CAP?

44. The way in which farmland and farming activity are defined and recorded on data and administration systems is increasingly critical for the effective implementation of many of EU policies. The systems that manage the CAP at farm and parcel level (operated by EU Member States within EU rules) – the Land Parcel Information System (LPIS) and Integrated Administration Control System (IACS) – are especially important, and hold the key to the effective delivery of several environmental as well as agricultural policy objectives.

45. LPIS is the only farm and parcel-level mapping system existing in all EU countries. It is the obvious database on which to record the location of semi-natural grasslands. This would make it possible to implement effectively targeted policies in an integrated manner.

46. Incorporating tools for protection for semi-natural grasslands into the CAP is not a radical idea; it is an example of joined-up policy thinking and it already happens in the UK, as mentioned above, through GAEC rules on preventing habitat deterioration. This option is provided for under the current CAP, but is not included under the EU Commission's reform proposals for cross-compliance post-2014.

47. Identifying semi-natural grasslands on LPIS is a practical step that some Member States have taken already. For example, Slovakia has integrated a complete national survey of semi-natural grasslands with LPIS, making it possible to implement efficiently targeted agri-environment schemes for this

land. In Northern Ireland, semi-natural grasslands are identified by means of aerial photographs through a screening process for agri-environment payments. In Wales, research by the European Forum on Nature Conservation and Pastoralism (EFNCP) has found that remote sensing technology can distinguish cultivated from semi-natural grasslands with a very high degree of accuracy. Further information on distinguishing semi natural and improved grasslands is included in Annex 5.

48. All of the options discussed and put forward in this report are currently implemented in at least one Member State. The question is whether a consistent approach at EU level can be implemented, incorporating the best practices, rather than applying the lowest common denominator.

The importance of identifying semi-natural grasslands on data sets as the basis for efficient targeting and monitoring

49. Biodiversity Strategy targets can only be achieved if policy measures are targeted on the most relevant land types. Semi-natural pastures are especially relevant for achieving the first three targets, namely:

• Target 1: Fully implement the Birds and Habitats Directives.
• Target 2: Maintain and restore ecosystems and their services.
• Target 3: Increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity.

50. Currently available data indicates that semi-natural grasslands are not being conserved effectively and that the main threat is the decline of low-intensity pastoral farming. Current policies therefore are failing to prevent this decline, and thus will fail to deliver the Biodiversity Strategy targets. Clearly policy improvements are needed. In particular, measures are needed that target semi-natural grassland and that target the farming systems and farms that use this land. These measures are needed on a large scale, and they need to be implemented consistently across the EU. In order to design, programme and implement such measures, authorities need to know how much semi-natural grassland there is, and where it is located. Farmers also need to know, in order to be able to respond to policy measures.

51. When 2020 arrives, national and EU authorities will have to assess whether the Biodiversity Strategy targets have been met, including for semi-natural grassland habitats and ecosystems. In order to do this, they will need to use data systems and indicators.

52. According to the CBD (UNEP 2003), four key questions to be addressed by indicators are:

• *What is changing?*,
• *Why is it changing?*,
• *Why is it important?* and
• *What are we doing about it?*

53. These four questions can be applied to semi-natural grasslands: in order to know whether EU goals for biodiversity, ecosystems and agriculture are being met, it is essential to have accurate data on semi-natural grasslands, and effective monitoring of the changes specifically affecting this land type. Such information will ensure the most effective and efficient method of achieving EU targets.

Are semi-natural pastures covered by EU data sets, indicators and monitoring systems?

54. Semi-natural grasslands can be defined in broad terms in a way that makes possible their separate recording on data sets. The broad parameters for such a grassland category would be:

- pastures and meadows, including grass and scrubby/woody vegetation, that are used by livestock

- no reseeding or tillage (except in specific conditions of very low-intensity land use found in southern and eastern Europe)

- no artificial fertilisation (possible light manuring of hay meadows)

- low-intensity grazing and dunging

- traditional meadow management (late cutting for hay, not silage)

55. Overall productivity and intensity of use below a given threshold give a strong indication that a particular area of pasture is in a broadly semi-natural state. Thus livestock densities per hectare of forage may in some circumstances be a useful proxy measure.

56. Currently no EU data set has a category equivalent to semi-natural pastures or semi-natural farmland more generally. Several Member States have such data categories, however, and use these for biodiversity monitoring and for targeting policy measures, such as agri-environment schemes and the EIA Directive. The problem is with EU data sets and definitions, that not only fail to recognise semi-natural pastures, but are also inconsistent in the way they define different types of pastoral land cover. Figure 3 illustrates the relationship between semi-natural pastures, and the categories used in various European data sets (Farm Structure Survey (FSS); Land Parcel Identification System (LPIS); the CORINE Land Cover). These are explored in more detail in Annex 6.

Indicators and monitoring systems

57. At the time of writing there is a range of different but overlapping systems at EU level for monitoring environmental aspects of EU policy. Those with relevance to semi-natural pastures include IRENA Agri-Environment Indicators; Common Monitoring and Evaluation Framework (CMEF) for Rural Development; the Streamlining European Biodiversity Indicators Process (SEBI

2010); and the Habitats Directive Article 17 reporting. In practice, for biodiversity monitoring there is heavy dependence on species and habitat monitoring in relation to Natura 2000, much of which is currently inadequate. None of these monitoring systems addresses semi-natural pastures specifically. Annex 6 sets out in detail the existing systems and how they could be improved.

58. In the context of the IRENA Agri-Environment Indicators, the Commission has suggested important follow-up actions, several of which are potentially relevant to effective monitoring of semi-natural pastures, as explained in detail in Annex 6.

Figure 3: Representation of categories used in different data sources, in relation to semi-natural pastures

Scrub and/or wooded pasture of native species, that is grazed and/or browsed.	Permanent grassland that has not been reseeded or fertilised.	Traditional hay meadows, not reseeded. May receive low levels of manure.	Multi-annual sown forage (grass, lucerne, sainfoin) reseeded every few years.	Annually sown forage crops – grass, maize, other cereals.
<0.1 LU/ha --1LU/ha-- >5 LU/ha				
	Semi-natural pastures			
Inclusion of scrub or wooded pasture depends on national interpretation.	Rough grazing – FSS – Pasture and meadow			
	Permanent Pasture (CAP definition R796/2004)			
	LPIS – all permanent pasture parcels eligible for CAP payments are recorded, and parcels that are not eligible (e.g. forest) – national permanent pasture categories vary at intensive and extensive ends of the spectrum. Several countries include an LPIS code that is equivalent to semi-natural pastures (e.g. "natural pastures)			
←3.2.2, 3.2.3, 3.2.4 Moors, Scrub (may be grazed, or may not) 3.2.1 Natural grassland – CORINE CLC – 2.3.1 Pastures				

Conclusions and Recommendations

Recommendation to prioritise semi natural grassland protection and restoration

59. Achieving the EU Biodiversity Strategy Targets for 2020 is an integral part of EU Governments' commitment to a more resource efficient Europe, in which our natural resources are sustained and used wisely for the benefit of everyone and to underpin longer term economic and social well-being. Semi-natural grasslands are the most degraded and rapidly declining of all ecosystems in Europe and they are the farmland of most importance for biodiversity and wider ecosystem services. **The EU and MS should identify semi-natural grassland and its characteristic species as one of the EU's top priorities for farmland protection, sustainable management and restoration.** This is an essential step towards meeting the EU Biodiversity Strategy targets 1 and 2 – improvements in conservation status of habitats and species and restoration of 15% of ecosystems).

Recommendations for improvements in grassland monitoring

60. The EU should establish semi-natural grassland as a land cover category in all relevant data systems, with a harmonised definition. Priority should be given to establishing semi–natural grassland as an obligatory LPIS code for all MS.

61. **All MS to** record **semi-natural grassland as a separate code on their LPIS/ IACs data systems so reports can be compiled at MS and EU levels on trends in the extent of this land cover type.**

62. The EU should implement a coherent and comprehensive monitoring system for semi-natural grassland extent and condition and conservation status of species that are characteristic of semi-natural grasslands, as a part of the IRENA and SEBI monitoring systems.

63. Grassland habitats of European importance have not been monitored in several Member States, despite the legal obligation under the EU Habitats Directive to do so. **It is imperative, in the current round (2006 - 2012) of Article 17 Reporting that all EU MS survey their semi-natural grasslands of European importance, report on these and show that they have taken action to sustain any good quality pastures and meadows that still exist and started to restore, in so far as feasible, up to 15% of degraded grassland ecosystems.**

64. All **MS to allocate sufficient long-term funding to monitor changes to grasslands and their characteristic butterflies**

Recommendations to support appropriate farming on semi-natural grasslands and to safeguard and restore semi-natural grasslands and their biodiversity

65. The EU to make the regulatory framework and incentives for farmers better aligned with the objective of sustaining and restoring semi-natural grasslands and their biodiversity. (See draft guidance document on Natura 2000 (Concha Almeida et al, 2013, in preparation) and farmland and EFNCP recommendations on semi natural grassland policy and CAP reform (http://www.efncp.org/policy/semi-natural-pastures-meadows/). This includes ensuring that all semi-natural pastures that are in farming use have access to Pillar 1 and 2 support payments.

66. MS to implement ambitious CAP Pillar 2 schemes for the support of appropriate farming on semi-natural grasslands, on a scale commensurate with the extent of this land cover.

67. MS to use the opportunity of the reformed CAP to increase farmer access to skilled advisors, who are knowledgeable about farming and ecology, in order to promote effective up-take of support schemes.

68. The EU to support much closer working together of policy makers, implementing authorities, farmer representatives, farmers, farming advisers and ecologists to develop an ecosystem based approach to agriculture and achieve better results in protecting and restoring grasslands and their biodiversity over the next 7 years and so help to meet the EU Biodiversity targets for 2020.

Sue Collins and Guy Beaufoy
EFNCP and BCE
December 2012

References

Concha Olmeda (Atecma/N2K GROUP), Clunie Keenleyside, Graham Tucker and Evelyn Underwood (IEEP) under contract to European Commission Number 070307/2010/580710/SER/B3, 2013 (in preparation). Guidance on how to integrate Natura 2000 conservation objectives into farming practices, based on Member States good practice experiences

Convention on Biological Diversity (CBD), 2010. COP 10 Decisions on CBD Strategic Plan http://www.cbd.int/decisions/cop

European Commission, 2009. COM(2009)378. Report by the EU Commission on the application and effectiveness of the EIA Directive

European Commission, 2011. COM (2011) 244. Communication from the EU Commission. "Our life insurance, our natural capital: an EU Biodiversity strategy to 2020"

European Environment Agency (EEA), 2010. Article 17 Reports: EU CIRCA database

EEA Report, No 5/2010. Assessing biodiversity in Europe - the 2010 report

EEA Technical Report, No12/2010. EU 2010 Biodiversity Baseline

EEA Report, 2010. 10 messages for 2010: Agricultural ecosystems

EEA European Topic Centre on Biodiversity, July 2010: Analysis of potential recovery of Habitats and Species of European Importance (unpublished)

EEA Technical Report No 11/2012: Streamlining European biodiversity indicators 2020: Building a future on lessons learnt from the SEBI 2010 process.

European Forum for Nature Conservation and Pastoralism (EFNCP) Pastures and Meadows Seminar Report 2012. http://www.efncp.org/download/EFNCP_Permanent-Pastures-and-Meadows.pdf

European Union Council Directive 92/43/EEC 21May 1992. The conservation of natural habitats and of wild fauna and flora [See also amending act(s)]

Institute for European Environmental Policy (IEEP), 2012. Estimating Overall Economic Value of Benefits provided by the Natura 2000 Network - Synthesis PDF 1.9 MB

FAO Statistical Yearbook – FAOSTAT, 2006: Area under permanent grassland

Oppermann R, Beaufoy G, Jones, G, 2012. High Nature Value Farming in Europe: 35 European countries - experience and opportunities. European Forum on Nature Conservation and Pastoralism, www.efncp.org

Pollard, E. 1977. A method for assessing changes in the abundance of butterflies. Biological Conservation 12:115–134

Pollard, E. and T. J. Yates. 1993. Monitoring butterflies for ecology and conservation. Joint Nature Conservation Committee, Monks Wood, UK

Thomas JA, 2005. Monitoring change in the abundance and distribution of insects using butterflies and other indicator groups. Phil. Trans. R. Soc. B 360, 339-357

Van Swaay, C.A.M. & Warren, M.S. 2012. Developing butterflies as indicators in Europe: current situation and future options (not yet published)

Van Swaay, C. & Warren M.S. 1999. Red Data Book of European butterflies (Rhopalocera). Council of Europe, Strasbourg (Nature and Environment Series No. 99)

Van Swaay, C.A.M., Van Strien, A.J., Harpke, A., Fontaine, B., Stefanescu, C., Roy, D., Maes, D., Kuhn, E., Ounap, E., Regan, E., Svitra, G., Heliola, J., Settele, J., Warren, M.S., Plattner, M., Kuussaari, M., Cornish, N., Garcia Pereira, P., Leopold, P., Feldmann, R., Jullard, R., Verovnik, R., Popov, S., Brereton, T., Gmelig Meyling, A., Collins, S. (2010). The European Butterfly Indicator for Grassland species 1990-2009. Report VS2010.010, De Vlinderstichting, Wageningen.

Van Swaay, C.A.M., Harpke, A., Van Strien, A., Fontaine, B., Stefanescu, C., Roy, D., Maes, D., Kuhn, E., Ounap, E., Regan, E.C., Svitra, G., Heliola, J., Settele, J., Musche, M., Warren, M.S., Plattner, M., Kuussaari, M., Cornish, N., Schweiger, O., Feldmann, R., Julliard, R., Verovnik, R., Roth, T. Brereton, T. & Devictor, V. (2010). The impact of climate change on butterfly communities 1990-2009. Report VS2010.025, Butterfly Conservation Europe & De Vlinderstichting, Wageningen.

Van Swaay, C., Cuttelod, A., Collins, S., Maes, D., Lopez Munguira, M., Sasic, M., Settele, J., Verovnik, R., Verstrael, T., Warren, M., Wiemers, M. and Wynhof, I. (2010). European Red List of Butterflies. Luxembourg: Publications Office of the European Union.

Van Swaay, C.A.M., Collins, S., Dusej, G., Maes, D., Munguira, M.L., Rakosy, L., Ryrholm, N, Sasic, M., Settele, J., Thomas, J., Verovnik, R., Verstrael, T., Warren, M.S., Wiemers, M. & Wynhoff, I. (2010). Do's and don'ts for butterflies of the Habitats Directive. Report VS2010.037, Butterfly Conservation Europe & De Vlinderstichting, Wageningen.

Van Swaay, C.A.M. & Warren, M.S. 2012. Developing butterflies as indicators in Europe: current situation and future options (not yet published).

Oppermann R, Beaufoy G, Jones, G, 2012. High Nature Value Farming in Europe: 35 European countries - experience and opportunities. European Forum on Nature Conservation and Pastoralism, www.efncp.org

Annex 1 to Grassland Recovery Paper: Importance of Natura 2000 Network and the wider farmed landscape for selected species and habitats of European importance

Butterfly Species Assessments: % of total area (in brackets) for selected Habitats Directive species that is covered by Natura 2000 network in each Biogeographic Zone

Phengaris (previously Maculinea) Nausithous

Pan (13,000 sq km) 49%
Med (500sq km) 100%
Atlantic (4,400sq km) 77%
Alp (21,000sq km) 49%

Phengaris (previously Maculinea) Telius

Pan (31,600sq km) 49% and 55%
Alp (22,500sq km) 47%

Lycanae dispar

Pan (68,500sq km) 49%
Med (27,400sq km) 30%
Atl (5,200sq km) 100%
Alp (36,800sq km) 37%

Pseudophilotes bavius

Med (7000sq km) 0%

Polyommatus eroides

Med (26,600sq km) 0%

Papilio hospiton

Med (10,600) 82%

Euphydryas aurinia

Med (92,000sq km) 64%

Lycaena helle

Alp (1,352sq km) 0%
Boreal (5,00sq km) 0%

Habitat Assessments: %age of total habitat area that is covered by Natura 2000 network in each Biogeographic zone

Mountain Hay meadows 6520

Pan 12,000 sq km 49%
Med 12,000 sq km 56%
Con 99,000 sq km 66%
Bor 75,000 sq km 15%
Atl 8,200 sq km 50%
Alp 73,600 sq km 68%

Lowland Hay meadows 6510

Pan 86,700 sq km 51%
Med 55,700 sq km 66%
Con 563,000 sq km 60%
Bor 256,000 sq km 24%
Atl 359,000 sq km 34%
Alp 106,000 sq km 76%

Ref: Part of the web-based Article 17 Technical Report (2001-2006):
Appendix "Coverage of habitats and Species by the Natura 2000 network'
http://biodiversity.eionet.europa.eu/article17
compiled by the European Topic Centre on Biological Diversity for the
European Commission (DG Environment)
ETC/BD, Paris, 2008

Annex 2 to Grassland Recovery Paper: European Grassland Butterfly Indicator Species

Butterfly species monitored

Phenargis (previously Maculinea) arion
Phenargis (previously Maculinea) nausithous
Lasiommata megera
Lycaena phlaeas
Thymelicus acteon
Erynnis tages
Ochlodes sylvanus
Coenonympha pamphilus
Cupido minimus
Polyommatus icarus
Anthocharis cardamines
Maniola jurtina
Euphydryas aurinia
Polyommatus coridon
Polyommatus bellargus
Spialia sertorius
Polyommatus semiargus

Annex 3 to Grassland Recovery paper: Butterfly Recovery Targets

Potential contribution of butterfly recovery to meeting EU headline target for recovery of EU Biodiversity by 2020: BCE Targets for recovery of EU Habitats Directive Butterflies by 2020

The EU Habitats Directive lists 29 butterflies of European importance, to which EU MS are obliged to give special protection. Most of these butterflies depend, to a large extent, for their survival and reproduction, on the condition of grasslands and agro ecosystems. Reports by EU Member States, in accordance with Article 17, on the Conservation Status of these Habitats Directive butterflies, show that most of them currently have unfavourable – inadequate, or unfavourable - bad status, across all EU Biogeographic zones. The EEA analysis of MS Article 17 reports shows that a number of grassland areas could potentially be improved in quality given the appropriate incentives and land management practices. In the light of this BCE has analysed the potential for grassland butterfly recovery and established the following operational targets for 2020.

Target A.
Improve the Conservation Status (or one or more parameters of their conservation status) of the following Habitats Directive butterflies from Unfavourable – Inadequate (U1) to Favourable

Colias myrmidone, (dependent on Agro ecosystems, Grassland ecosystems,

Heath and Scrub ecosystems)

Erebia medusa polaris (dependent on Grassland ecosystems, Heath and Scrub ecosystems, Forest ecosystems)

Lycaena dispar, (dependent on Agro ecosystems, Grassland ecosystems, Heath and Scrub ecosystems, Wetland ecosystems)

Parnassius mnemosyne (dependent on Agro ecosystems, Grassland ecosystems, Heath and Scrub ecosystems)

Phengaris (previously Maculina) nausithous (dependent on Agro ecosystems, Grassland ecosystems, Wetland ecosystems, Heath and Scrub ecosystems)

5.14.2 Target B.
Improve the Conservation Status (or one or more parameters of their conservation status) of the following Habitats Directive butterflies from Unfavourable – Bad (U2) to Unfavourable – Inadequate (U1):

Coenonympha hero (dependent on Grassland ecosystems, Forest ecosystems)

Phengaris (previously Maculina) arion, (dependent on Agro ecosystems. Grassland ecosystems, Heath and Scrub ecosystems)

Phengaris (previously Maculina) telius (dependent on Agro ecosystems, Grassland ecosystems)

5.14.3 Target C.
Halt the loss/decline in the following Habitats Directive butterflies:
Argynnis elisa
Boloria improba
Coenonympha oedippus
Erebia calcaria
Erebia christi
Erebia sudetica
Euphydryas aurinia
Euphydryas maturna
Leptidea morsei
Lopinga achine
Lycaena helle
Melanargia arge
Papilio alexanor
Papilio hospiton
Parnassius apollo
Plebejus aquilo
Polyommatus golgus
Pseudophilotes bavius
Zerynthia polyxena

Reference: Sue Collins, Chris Van Swaay and Martin Warren, BCE Strategy for Recovery of Habitats Directive Butterflies, 2011, unpublished

Annex 4 to Grassland recovery paper: Land Management Guidelines for Butterfly Recovery

Generic Guidelines for good management of land for Habitats Directive Butterflies.

The Butterfly Conservation Europe report on Do's and Don'ts for management of Habitats Directive butterflies (Van Swaay et al, 2010), highlights the following generic guidelines for appropriate management of land for Habitats Directive butterflies:

Manage at a landscape scale. Butterflies usually exist as a network of local populations between which there is some interchange of adults to form a metapopulation. Management should aim to maintain this population network across the landscape, accepting that not every locality may be suitable at any one time (though some core sites will be). Progressive loss of habitat suitability across a landscape, or new barriers to dispersal, can lead to loss of local populations and eventually regional extinction of a species through the breakdown of metapopulations.

Maintain active pastoral systems. Grassland is the single most important habitat for butterflies and abandonment is the biggest single threat. Abandonment can temporarily lead to good conditions for many species, but will soon lead to scrub encroachment and eventual loss of suitable breeding conditions as open grassland turns to woodland. The maintenance of open grassland is thus essential, usually by the maintenance of active traditional pastoral systems, including livestock grazing and hay cutting. Socio-economic conditions will need to be considered to ensure such pastoral systems survive.

Manage for variety. Grassland butterflies each have their own specific habitat requirements, so management should aim to provide a range of conditions, often based around traditional land use patterns. Some species require short vegetation, while others require longer vegetation. Others still require mosaics of vegetation types. Managing for habitat variety across a landscape is thus essential to conserve the full range of typical species.

Avoid uniform management (especially in hay meadows). Butterfly populations can be badly damaged, or can even become extinct, following intensive and uniform management, notably hay cutting. Cutting dates should be varied as much as possible across each Natura 2000 sites so that not all areas are cut within a narrow time window. Ideally a mosaic of small scale cutting should be implemented, replicating traditional management before mechanisation.

Habitat mosaics are crucial. Many butterflies use resources found in a

range of habitat types and require mosaics of different habitats in the landscape. For example, some species breed along scrub or wood edges and need a mixture of scrub and grassland. Other species may lay eggs in one type of habitat and use nectar resources in another. The spatial scale of the mosaic will vary from region to region, and will often depend on the traditional land use pattern. Sometimes it will be small fields with small blocks of scrub or woodland, while in more extensive landscapes the mosaic may be very large scale.

Active woodland management is often essential. Most woodland butterflies require some form of active management and this is essential for the survival of several threatened species. Management can either be regular thinning or rotational coppicing or planting. Some species also require the maintenance of open habitats within woodland, such as sunny clearings or paths/tracks. Traditional management is often a useful guide to suitable management, but may need to be adapted to suit modern timber markets.

Monitoring is essential. Some form of biological monitoring of Natura 2000 sites is essential to ensure management is maintaining the designated features. Butterflies are a sensitive indicator group that can be used to assess change (both positive and negative) and inform decision making. Many butterflies are easy to identify and there are often local volunteer groups or Societies who can help provide data. Monitoring can be as simple as successive species inventories, or can be structured around formal sampling procedures such as butterfly transects. The latter are more time consuming but can provide accurate population trends that can show deleterious changes at an early stage.

Reference: Van Swaay, C.A.M., Collins, S., Dusej, G., Maes, D., Munguira, M.L., Rakosy, L., Ryrholm, N, Sasic, M., Settele, J., Thomas, J., Verovnik, R., Verstrael, T., Warren, M.S., Wiemers, M. & Wynhoff, I. (2010) *Do's and don'ts for butterflies of the Habitats Directive*. Report VS2010.037, Butterfly Conservation Europe & De Vlinderstichting, Wageningen.

Annex 5 to Grassland Recovery Paper: Distinguishing semi-natural and improved grasslands

1. Semi-natural pastures are those that have not been sown or artificially fertilised. They consist of spontaneous vegetation that is used for grazing or browsing, or as traditional hay meadows. The term pasture is used in this report to include meadows, as under the CAP and FSS definitions.

2. Semi-natural grasslands do not consist only of herbaceous species; they also includes scrub, woodland, or a combination of these habitat types. Scrubby and woody pastures can be of particular importance for biodiversity conservation and represent a widespread type of high nature value (HNV) farmland in some regions. Wood pasture habitats are one of the most threatened in the EU.

3. Two distinct approaches can be taken to defining semi-natural pastures:

- Composition of the vegetation community, which typically concentrates on the presence of certain indicator species of flora.
- Management parameters - at the most basic level, a pasture that has not been resown and/or fertilised for a certain number of years may be considered semi-natural.

4. In terms of species composition as an indicator of semi-natural status, much of the focus tends to be on higher plants, rather than a wider consideration of biodiversity. There has been little consideration of lower plants or invertebrates. Work on waxcap fungi in the UK has suggested that heavy grazing of pastures by sheep is sometimes the best management for such species, whereas ploughing is especially damaging. Work on the conservation of higher plants has tended to emphasise the need for less-intensive grazing. This is also important for invertebrate and pollinator conservation. Species groups such as fungi may be good indicators of the other aspect of semi-naturalness, namely continuity of management.

5. If semi-natural grassland that has been ploughed, fertilized and resown is subsequently managed with low intensity grazing or mowing for many years it may revert to a more semi-natural state. However, the resulting sward is likely to be qualitatively different from the original vegetation composition. The diversity of plant and insect species is likely to be lower and the time any reversion takes will vary substantially with the substrate, the surrounding vegetation and seed sources, and the historic management (especially fertilisation).

6. Grassland that has been heavily fertilised and repeatedly re-sown will take many years to lose the artificially high levels of fertility (leaving aside other environmental factors); and in an intensively-farmed landscape with little natural or semi-natural vegetation, the chances of species re-colonisation will be low and if it does occur will be extremely slow. Many species may never return by natural means in this situation.

7. However, in certain conditions, occasional tillage and fertilisation may be compatible with semi-natural status. This is especially relevant in Mediterranean regions, where semi-natural grasslands may be tilled occasionally for scrub control, without significantly reducing their biodiversity value. Under Mediterranean climatic conditions a large proportion of the "sward" consists of annual species which are less affected by tillage, or indeed by "over grazing". Especially where the landscape has a high proportion of natural and semi-natural vegetation, even land that has been tilled and fertilised for arable cropping can harbour considerable biodiversity within a year or two of being left fallow. This is also observed in parts of Eastern Europe.

8. Occasional manuring at very low levels may be considered compatible with a semi-natural state for certain specific types of grassland, or even necessary for their maintenance in the case of some hay meadows.

9. The concept of semi-natural habitats is inextricably linked to the conservation of particular communities of flora and fauna, and thus to the management practices that seem best suited to ensuring this conservation. Thus depending on the species or taxa, attention will tend to focus on different management parameters: in some cases non-tillage will be considered crucial, in others the main concern may be to have no fertilisation, or a particular grazing regime.

Annex 6 to Grassland Recovery Paper: EU Agriculture and Biodiversity Data Sets and Indicators with Recommendations for improvements.

EU Agriculture and biodiversity data sets relevant to semi-natural grassland

1.These include results of the EU Farm Structure Surveys (FSS); the Farm Accountancy Data Network (FADN); the EU Land Parcel Identification System (LPIS); the CORINE Land Cover Data Base; IRENA Agri-Environment Indicators; the EU Common Monitoring and Evaluation Framework (CMEF) for Rural Development; the EU Streamlining European Biodiversity Indicators Process (SEBI 2010); and the EU Habitats Directive Article 17 reporting.

Farm Structure Surveys (FSS) and Farm Accountancy Data Network (FADN)

2. In agricultural data bases, semi-natural pastures and meadows can be expected to overlap with the broad category of "permanent pasture" or "permanent grassland". Categories such as "temporary sown grasslands" will not include semi-natural types.

3. Under the Farm Structures Survey (FSS), Permanent Grassland is defined as – "Land used permanently (for five years or more) to grow herbaceous forage crops, through cultivation (sown) or naturally (self-seeded), and that is not included in the crop rotation on the holding. The land can be used for grazing or mown for silage, hay or used for renewable energy production."

4. Permanent Grassland is broken down into two sub-types, defined as:

- "Permanent Pasture and Meadows - On good or medium quality soils. These areas can normally be used for intensive grazing.

- Rough Grazings - Low-yielding permanent grassland, usually on low quality soil, for example on hilly land and at high altitudes, usually unimproved by fertiliser, cultivation, reseeding or drainage. These areas can normally be used only for extensive grazing and are not normally mown, or are mown in an extensive manner; they cannot support a large density of animals" (Handbook on implementing the FSS and SAPM definitions, Eurostat, September 2008)."

5. The Permanent Pasture and Meadows sub-type will include intensively farmed silage fields, and permanent pastures that may be reseeded every five years and/or heavily fertilised. However, traditional semi-natural hay meadows can also be expected to fall within this category. Distinguishing the intensive from the semi-natural within this category is not possible using FSS alone.

6. The FSS Rough Grazings sub-type appears to be well within the bounds of semi-natural pasture, as it specifies explicitly that the grassland is unimproved. However, this category does not cover the *full range* of semi-natural forage, since all FSS Permanent Grassland (including Rough Grazings) is defined as *herbaceous* forage, thus technically it excludes forage consisting of woody plants, such as heather or *matorral*. Rough Grazings of course do not include the more productive types of semi-natural grassland, such as hay meadows.

7. In practice, what is included and what is excluded from these FSS categories of Permanent Grassland depends to some extent on the interpretation of each Member State. In national definitions, Rough Grazings often include some types of non-herbaceous pasture (for example, heathland). However, under the current European definition there seems to be no guarantee of consistency between Member States, and this situation can lead to problems and important gaps in data.

8. The EU Farm Accountancy Data Network (FADN) follows the same categories and definitions as FSS.

The EU Land Parcel Identification System (LPIS)

9. The current Land Parcel Identification System (LPIS), and the Integrated Administration and Control System (IACS) of which it forms a part, was established by EU Regulations 1782/2003 and 796/2004. However, there is no clear description in the Regulations of LPIS, and its overall functionality – it is simply the GIS base for IACS. As with much of the CAP, it has developed as the result of layer upon layer of new policy measures, creating a confused overall picture that is understood by few.

10. Although following a framework of requirements laid down in the Regulations, LPIS is not standardised across Member States. The land cover codes used by the different Member States vary considerably. The Joint Research Centre (JRC) of the European Commission has reviewed all of the codes used and produced a list of ten standardised codes that are the most used (see below). However, 70% of all the LPIS systems in the EU apply more codes than these 10 standardised codes.
http://www.efncp.org/download/hungen2012/devos.pdf

A arable land
G grassland
N natural grassland
H greenhouse

        T permanent tree crop
        S permanent scrub crop
        C permanent herbaceous crop
        P short rotation coppice
        R (irrigated) rice
        K kitchen gardens (SAPS only)

11. The standardised code N, "natural grassland", from this list broadly captures the "semi-natural grassland" discussed in the present report, and a corresponding code is used in several Member States. Some Member States distinguish different types of semi-natural pasture, for example the Spanish LPIS has separate codes for tree pastures and shrub pastures. However, at EU level there is no requirement for Member States to apply such codes, and in some countries all types of grassland are put into a single code, such as "permanent grassland".

12. Given the key ecosystem functions of semi-natural grasslands and their extreme vulnerability to abandonment, intensification and afforestation, it is essential to establish an LPIS code at EU level for this type of farmland.

13. The EU-wide definition we propose for semi-natural pastures is as follows: "Semi-natural pastures consist of predominantly self-seeded forage maintained by livestock grazing and/or harvesting. The vegetation has not been substantially modified by agronomic improvement (reseeding, fertilisation)". Within this broad definition, Member States should establish more specific definitions adapted to their circumstances, and create a minimum of one LPIS code for the recording of parcels with semi-natural pastures.

The EU CORINE land cover database

14. CORINE European land-cover data includes two classes of non-rotational grassland: these are "Natural grassland" and "Pasture".

> "3.2.1. Natural grassland - Low productivity grassland. Often situated in areas of rough, uneven ground. Frequently includes rocky areas, briars and heathland. Areas which are being grazed or overgrazed when the image is recorded, especially near cowsheds or mountain sheepfolds, should be classified under 3.2.1 and not under 3.2.2 (Moors) or 3.3.3 (Sparsely vegetated areas). The criteria to be taken into account are distance from permanent habitation and the length of time during which animals can graze (less than 120 days: from June to September)."

15. Although the criteria for distinguishing Natural grassland from Pastures (see below) do not seem to be very robust (distance from inhabited and cultivated areas), it is probable that most land classed as Natural grassland will be close to a semi-natural state.

16. This definition poses difficulties if the CORINE class names are to be taken as reflective of the actual land cover within the particular classes. A

strict interpretation of the definition would include in Natural grassland any land which was in fact grazed moorland, but seemingly exclude land capable of being grazed (perhaps at low densities) for longer than 4 summer months.

17. Many moors and pastures of the Atlantic zone would come into both these categories. It implies that all land away from dwellings is semi-natural (not the case in intensively managed uplands in the UK, for example) and that all land close to habitation is not (not the case in most of Romania, for instance). It is likely that the classification varies substantially across the EU, assuming the interpreters follow the guidelines, given that the agronomic situation differs so markedly across the 27 Member States.

18. More productive semi-natural types such as traditional hay meadows are likely to be classed not as "Natural grassland" but rather as "Pastures":

> "2.3.1 Pastures - dense grass cover, of floral composition, dominated by graminaceae, not under a rotation system. Mainly for grazing, but the fodder may be harvested mechanically. Includes areas with hedges (bocage). Pasture is always located close to inhabited and cultivated areas, which means that high-lying pasture areas far from houses or crops should be classified under 3.2.1 (Natural grasslands) and not under 2.3.1."

19. Under this definition, traditional hay meadows cannot be distinguished from intensive silage fields. Indeed, such a distinction is probably impossible on the basis of photo interpretation alone.

20. At the least productive end of the spectrum there are non-herbaceous CORINE CLC classes that may be under use for livestock grazing and/or browsing:

> "3.2.2. Moors and heathland - Vegetation with low and closed cover, dominated by bushes, shrubs and herbaceous plants (heather, briars, broom, gorse, laburnum, etc.).
>
> 3.2.3. Sclerophyllous vegetation - Bushy sclerophyllous vegetation, including maquis and garrigue.
>
> 3.2.4. Transitional woodland/shrub - Bushy or herbaceous vegetation with scattered trees. Can represent either woodland degradation or forest regeneration/colonisation."

21. For these classes, since CORINE shows land*cover* rather than land*use*, it does distinguish between vegetation that is under extensive use for livestock and therefore can be considered to be farmland, and that which is not under such use and may not have been for many years. This is particularly relevant in the case of scrub and forest land cover that makes up an important part of HNV grazing/browsing land in Mediterranean countries and parts of Eastern Europe.

Agri-environmental indicators - IRENA

22. EU Commission document, COM (2006) 508final, explains the background to the IRENA agri-environmental indicators. These date back to the Cardiff European Council (June 1998) that endorsed the principle that the environmental dimension should be integrated in all European Community policies. It also stressed the importance of developing appropriate environmental indicators to assess the impact of different economic sectors – including agriculture – on the environment, and to monitor progress in integrating environmental concerns.

23. The Helsinki European Council (December 1999) adopted the strategy for integrating the environmental dimension into the CAP. The strategy sets environmental integration objectives for water, land use and soil, climate change and air quality, as well as landscape and biodiversity, affirming that the preservation of natural resources is an essential element for the long-term sustainability of agriculture. In its conclusions, the Council requested a regular reporting on progress in integration, based on agri-environmental indicators.

24. The Goteborg European Council (June 2001) adopted the conclusions of the Agriculture Council (April 2001) on environmental integration and sustainable development in the CAP, inviting the Commission to regularly monitor and evaluate the Council's integration strategy and calling upon the Commission to continue its efforts to further improve the set of agri-environmental indicators and to define the statistical needs for these indicators.

25. In response to the Council's requests, the Commission issued two Communications. The first Communication "Indicators for the Integration of Environmental Concerns into the Common Agricultural Policy" identified a set of 35 agri-environmental indicators and presented an analytical framework for their development.

26. The second Communication "Statistical Information Needed for Indicators to Monitor the Integration of Environmental Concerns into the CAP" elaborated further on the indicator concept and identified potential data sources and information needed to make the indicators operational.

27. These two Commission Communications provided the conceptual input for the launching of the IRENA operation (Indicator Reporting on the Integration of Environmental Concerns into Agriculture Policy) in September 2002. This operation, which was aimed at developing a set of agri-environmental indicators, was finalised at the end of 2005.

28. While other indicator exercises from the EU (e.g. Structural, sustainable development, rural development indicators) and other international organisations (e.g. OECD, Convention on Biological Diversity) include some agri-environmental indicators, they are not fully effective as policy monitoring tools. A better set of indicators, targeted to measure the progress of environmental integration into the CAP is necessary to properly assess the

impact of policy decisions, and to identify shortcomings in current measures and the need for new policy initiatives. Also, where appropriate, indicators are needed to improve the targeting and tailoring of the measures to local conditions.

29. In its 2006 communication, the Commission proposed maintaining a core set of 28 agri-environmental indicators, including 26 IRENA indicators and two new indicators covering new agri-environmental issues (see table annexed). This set of indicators includes some that are of relevance to semi-natural pastures:

HNV farmland:
Farmland birds
Land at risk of abandonment
Intensification/extensification

30. The Commission also suggested important follow-up actions, several of which are potentially relevant to effective monitoring of semi-natural pastures, as explained below:

31. "To further develop existing legislation related to agricultural data, both statistical and administrative, with a view to covering the data needs for agri-environmental indicators more effectively;"

- EFNCP agrees and sees a clear need to bring the grassland/pasture categories of FSS and LPIS in line with current EU agriculture, environment and biodiversity policy objectives, specifically through the introduction of a "semi-natural pastures" category.

32. "To set up and develop new EU surveys, where appropriate, particularly regarding farm management practices and the use of farm inputs;"

- EFNCP agrees. Sample surveys of farm practices is an essential part of effective monitoring of HNV farming. For this purpose, it is important to monitor practices on a set of farms with HNV characteristics (especially semi-natural pasture), not to monitor all farms as an undifferentiated block.

33. "To examine, in the context of the ongoing process of updating the Farm Accountancy Data Network (FADN), the scope for improving and extending the use of the FADN in order to respond to the increasing demand for agri-environmental reporting and analyses;"

- EFNCP proposes that expanding FADN in this way can be relevant only if the set of farms is expanded to include those of small economic size.

34. "To continue looking for better indicators for agricultural biodiversity, habitats and landscapes;"

- EFNCP agrees and proposes that indicators are required for monitoring changes in the extent, condition and management of semi-natural pastures, and that these would make a major contribution to monitoring of biodiversity and ecosystem services.

35. "To explore possibilities for gathering better data:

– from environmental monitoring systems, in particular under the Nitrates Directive, the Water Framework Directive and the Birds and Habitats Directives;

– through spatialisation methods (e.g. redistribution of agricultural data reported at administrative level to other geographical units) and other techniques related to spatial data (e.g. area-frame surveys, geo-referencing methods);

– from non-public data providers (e.g. pan-European common bird monitoring database); this may require the consolidation and harmonisation of existing data sets to increase their transparency and quality;"

- EFNCP sees the need to achieve full EU coverage of butterfly monitoring systems - see http://www.efncp.org/download/VS2012-012_Developing_butterflies_as_indicators_in_Europe.pdf

36. "To explore possibilities for gathering better data:

– through other European initiatives, such as Global Monitoring for Environment and Security (GMES) and the Infrastructure for Spatial Information in Europe (INSPIRE);

– through the Global Earth Observation System of Systems (GEOSS);

37. "To strengthen co-ordination with other indicator activities"

The EU Common Monitoring and Evaluation Framework (CMEF)

38. As part of the new system of Rural Development Programmes introduced for the period 2007 – 2013 by Regulation 1698/2005, a Common Monitoring and Evaluation Framework (CMEF) was established (Regulation 1974/2006) to provide a single framework for monitoring and evaluation of all rural development measures.

39. The CMEF includes indicators for monitoring the biodiversity effects of RDPs, as follows:

Baseline indicators
17 Population of farmland birds
18 High Nature Value farmland and forestry
19 Tree species composition

41

Impact indicators
4 Reversing Biodiversity decline - Change in trend in biodiversity
decline as measured by farmland bird species population
5 Maintenance of high nature value farmland and forestry - Changes in
high nature value farmland and forestry

40. The farmland birds indicator is of some relevance for semi-natural
grasslands. However, farmland birds generally are better indicators of arable
and mixed farms, and large spatial scales, than of semi-natural grassland
habitats. Butterflies are far more specific to grasslands and are more sensitive
to changes in the quality of these habitats, which are crucial for biodiversity.
They also operate at smaller spatial scales and are thus sensitive to site
management.

41.The High Nature Value (HNV) farmland indicator should provide a valuable
tool for monitoring semi-natural grasslands, as all semi-natural grasslands can
be considered HNV farmland and they make up a large proportion of HNV
farmland in most regions.

42. Unfortunately, the data limitations explained in this paper mean that very
few Member States are able at present to implement the HNV farmland
indicator. Addressing these data limitations would make it possible to
implement the HNV farmland indicator.

**The EU Streamlining European Biodiversity Indicators Process (SEBI
2010)**

43. The Streamlining European Biodiversity Indicators (SEBI) process was
started in 2005 to provide a streamlined set of biodiversity indicators for
Europe. This process is driven by the EEA and the European Commission's
Directorate General for Environment. It began following the decision, via the
Kiev Resolution on Biodiversity in 2003, to reinforce Europe's 'objective to halt
the loss of biological diversity at all levels by the year 2010'.

44. In 2012 the current SEBI cycle ended, thus marking an appropriate time
for further improving the process and the indicator set. Coupled with the
European Parliament's resolution of 20 April 2012 calling for development of
reliable indicators of environmental sustainability, the SEBI process can be
viewed as a key instrument to monitor progress in achieving the 2020 target.
The SEBI indicators (SEBI 2010, EEA) relevant to semi-natural pastures are
as follows (SEBI indicator number in brackets):

Species – birds and butterflies (1)
Species – change in status of threatened/protected species, Red List
(2) and Species of European Interest (3)
Trends in extent of selected ecosystems (4) and Habitats of European
Interest (5)
Fragmentation of natural and semi-natural habitats (13)
Agricultural area under management practices potentially supporting
biodiversity (20)

45. The heavy dependence for 2020 EU Biodiversity Strategy targets on Indicators 1-5 and 13 is a major concern. Data and monitoring of species and habitats are known to be inadequate in many countries, with consist coverage existing only for a few species, mainly birds. Monitoring of ecosystems and habitats in practice falls back largely on Article 17 reporting, which is described below. It is notable that the HNV farmland indicator is not part of EU 2010 Biodiversity baseline.

46. The EU Biodiversity Strategy includes a commitment to the development of a coherent framework for monitoring, assessing and reporting on progress in implementing actions and in reaching the targets. The EU Environment Council agreed that such a framework is needed to link existing biodiversity data and knowledge systems with the EU Strategy and to streamline EU and global monitoring, reporting and review obligations under environmental and other relevant legislation as well as to avoid duplication and increase of reporting and administrative burden.

47. In June 2009 the Environment Council adopted conclusions on the mid-term assessment of implementing the EU Biodiversity Action Plan, highlighting the importance of strengthening the integration of biodiversity and ecosystem concerns into relevant sectoral policies and of effective implementation of existing EU policies and legislation to address the biodiversity challenge. Regarding SEBI 2010, the Council welcomed the efforts to streamline European Biodiversity Indicators through the SEBI 2010 project, but stressed that they needed to be complemented by other indicators, especially indicators designed to assess progress in sectoral policies.

48. The SEBI report (EEA, 2012) states that "No individual indicator can answer all of those questions sufficiently, but a subset of indicators could if well designed and mutually coherent. Selecting indicators should be done considering not only their individual merit but also the way they can complement each other to answer each of the policy questions. Monitoring is a major concern. For several indicators, the data are non-standardised or incomplete, or there is a serious lack of geographical coverage. The monitoring of the state of biodiversity is slowly improving." EFNCP agrees, but see progress as too slow. Any development should give priority to tracking things we know are declining most rapidly, especially farmland Annex 1 habitats i.e. semi-natural pastures.

49. In their report the EEA said "Responses from the country consultation suggested that indicators linked to sectors must be reinforced and the geographical coverage must be enlarged. Several countries had more specific suggestions such as the inclusion of an indicator on plant species".

EU Habitats Directive Article 17 reporting

50. All EU Member States are required by the EU Habitats Directive to monitor habitats and species of Community interest. These are listed in the

Annexes to the Directive. Under Article 17, reports on implementation are to be prepared every six years and sent to the European Commission. For the period 2001 to 2006, 25 Member States (MS) (i.e. excluding Bulgaria and Romania, who joined the EU in 2007) assessed the conservation status of over 1000 species and over 200 habitats. They mostly used agreed methodology and this enabled the Commission to derive assessments at the biogeographic zone and EU levels. They also gave the first EU wide inventory of the extent and spatial distribution of the 216 habitat types listed on Annex 1 of the Directive.

51. The European Topic Centre on Biological Diversity collated and analysed the reports submitted by MS and published a large number of useful reports summarising the findings. Most of these painted a picture of significant concern with the vast majority of habitats and species assessed as in unfavourable conservation status. European Environment Agency, ETC/BD, 2008.

52. The European Topic Centre on Biological Diversity also ran a series of checks on the data completeness and coherence. These are described in the document 'Quality Evaluation of Member States reporting for Article 17 of Habitats Directive' (ETC/BD, Paris, 2007). They commented that Member States " mostly used data collected for other purposes and over varied time periods. In many cases data was not reported and overall assessments were reported as 'unknown'." 13% of regional habitat assessments and 27% of regional species assessments were reported as 'unknown'; particularly from the Mediterranean region; Cyprus, Greece, Spain and Portugal all reported 'unknown' for more than 50% of their species reports. Spain reported 'unknown' for some 87% of its habitats as well. This absence of data and reporting is a major concern, given that the Mediterranean Member States have vast areas of semi-natural grasslands corresponding with Annex 1 habitats, and given that the decline of extensive pastoral farming is known to be severe in these regions. In addition there were inconsistencies in the way in which MS took account of typical species in habitat assessments and they found particular difficulty in reporting on wide ranging species which were not associated with a specific habitat.

53. Threats (foreseeable impacts) and pressures (past and present impacts) threatening the long term viability of habitats and species were listed by MS but not ranked. The majority of habitats and species were reported as suffering from multiple threats and pressures and in the absence of ranking the ETC did not provide a rigorous overview at EU level of which threats were most significant.

54. From 2009 to 2011 Member States worked with the EU Commission and stakeholders to review these deficiencies in monitoring and reporting and revised procedures have been put in place to address a number of the problems. The next round of reporting for the period 2007 to 2013 is already underway and it is to be hoped that all MS will meet the requirements of the Directive and submit full and well evidenced reports, including accurate

distribution maps, enabling the EU Commission to prepare good overviews at Biogeographic zone and EU levels.

55. However no substantial new funds have been provided to increase the coverage of systematic biodiversity monitoring. This is urgently required in all Member States so that the progress with meeting EU Biodiversity targets can be tracked and additional targeted remedial action can be put in place.

References

EIONET web-based Habitats Directive Article 17 Report on Data completeness, quality and coherence 2001-2007

European Commission Communication, COM(2000)20. "Indicators for the Integration of Environmental Concerns into the Common Agricultural Policy"

European Commission Communication, COM(2006)508final. IRENA indicators: Communication from the Commission to the Council and the European Parliament: Development of agri-environmental indicators for monitoring the integration of environmental concerns into the common agricultural policy. Brussels, 2006

European Environment Agency, ETC/BD, Paris, 2008.
Web-based Article 17 Technical Report (2001-2006) including Selected Highlights http://biodiversity.eionet.europa.eu/article17
compiled by the European Topic Centre on Biological Diversity for the European Commission (DG Environment)

SEBI 2010: EEA Report No 5/2010, Assessing biodiversity in Europe — the 2010 report

SEBI 2012: EEA Technical report: Streamlining European Biodiversity Indicators