

CAP SPECIFIC OBJECTIVES

...explained

– Brief No 6



Biodiversity and farmed landscapes

KEY MESSAGES

- ✓ **EU farmland biodiversity is falling**, according to available evidence.
- ✓ **Various factors** affect farmland biodiversity. Among these are the presence (and variety) of habitats – of which core elements often include landscape features such as hedges, field margins, dry-stone walls, isolated trees etc.
- ✓ **Major loss of such farm landscape features has been widely reported** – and in objective terms, data on this phenomenon are becoming more widely available.
- ✓ In future, among the various steps needed to conserve farmland biodiversity are **increases in the density of farmland landscape features under (appropriate) management by farmers**.
- ✓ To achieve this, **the post-2020 Common Agricultural Policy should be enhanced** compared to the policy's 2014-2020 form – taking into account issues such as links to EU environmental legislation, Member States' overall planning of their use of CAP funding, obligations for individual CAP beneficiaries, and the detail of policy measures available. Improvements in data and measurement (surveys, indicators) in relation to biodiversity and landscapes will also be extremely important.

This brief has been written by Mike Mackenzie of DG AGRI, with input from various colleagues.

Disclaimer: The contents of the publication do not necessarily reflect the position or opinion of the European Commission.

1. Introduction

This Brief is one of a series of such documents presenting information about the nine specific objectives of the future Common Agricultural Policy (CAP) as proposed by the European Commission.¹ It covers the proposed objective “contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes”.

Like several of the other Briefs, it takes a particular focus within the objective in question – in several respects. First, it primarily addresses **farmland** biodiversity. Biodiversity in the EU’s forests is also of importance, and the current CAP supports action in favour of this to some extent; however, the emphasis of the CAP clearly falls on the agricultural sector. Second, although the Brief offers a certain level of information on farmland biodiversity in general terms, it pays particular attention to landscapes and especially “landscape features” – as drivers of biodiversity which also have aesthetic and cultural value attached. The Brief takes this approach because these aspects of the CAP objective in question are arguably written about less often than others, and they throw up interesting technical and policy-related challenges. Finally, the Brief mentions only in passing the final element of the CAP objective under examination – to “enhance ecosystem services”.

Overall, then, this Brief makes a contribution to discussion of the CAP objective in question instead of attempting a comprehensive treatment. It is intended to be accessible to non-specialists but also holds potential value for readers already familiar with the CAP.

2. Key facts about biodiversity and farmed landscapes

2.1 The state of agriculture-dependent species and habitats

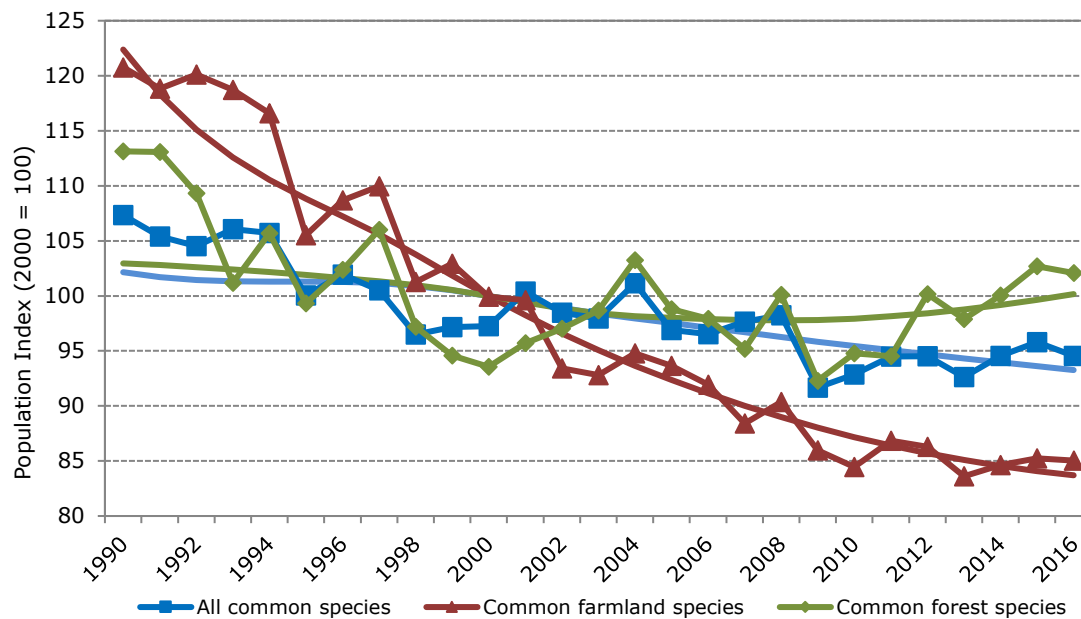
A limited number of indicators are available which directly convey the status of farmland-dependent species and habitats in the EU. The story which they tell is not positive.

Farmland Bird Index

In the EU, wild birds and their habitats receive a certain level of protection under the “Birds Directive”² – the oldest piece of EU legislation on the environment.

The Farmland Bird Index is an indicator of populations of bird species which depend on EU farmland habitats. In addition to providing information about bird populations themselves, it offers hints at the overall situation in terms of farmland biodiversity in a given area, since birds sit near the top of the food chain.

Figure 1: Population trends of common birds in the EU, 1990-2016



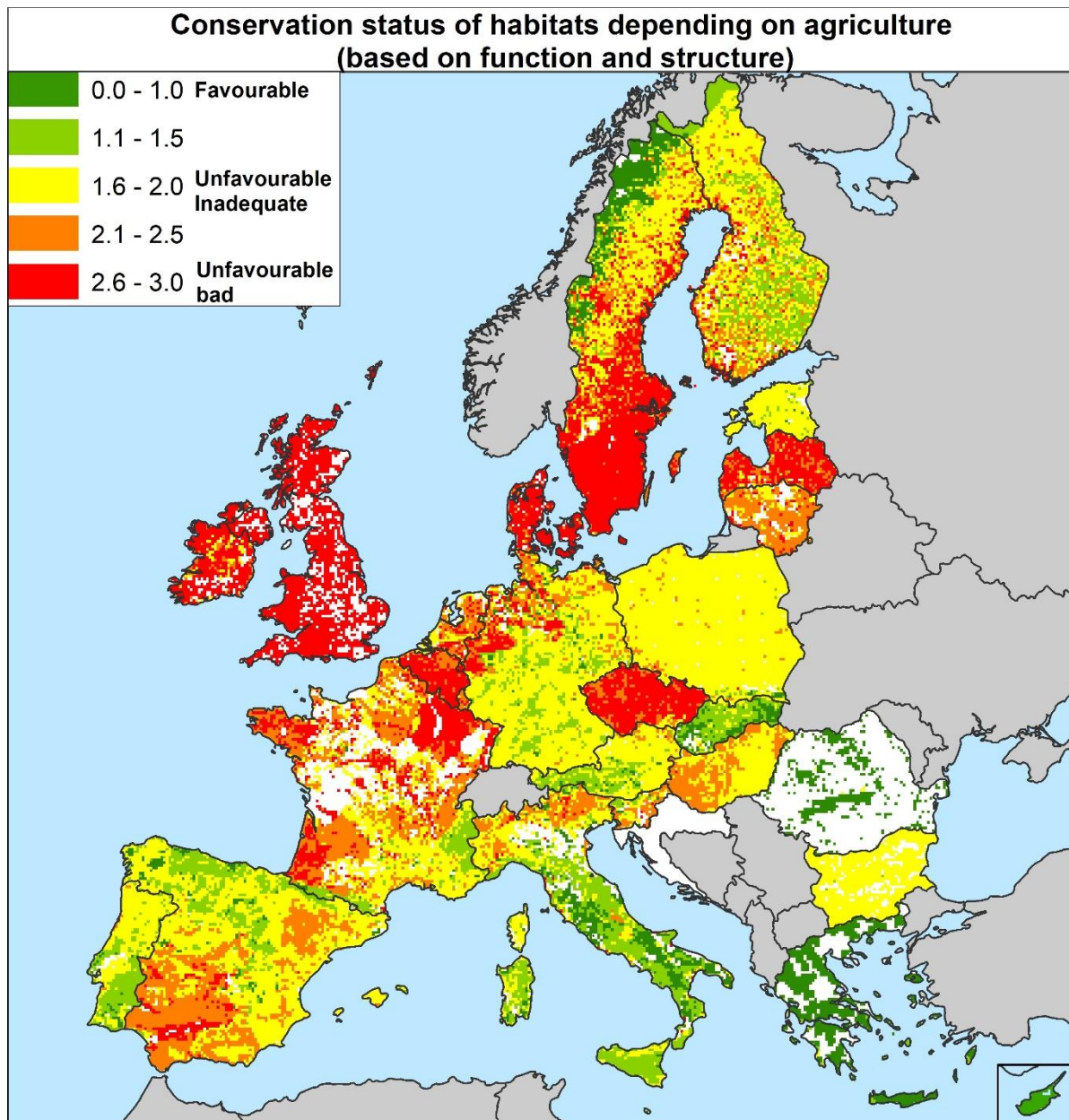
Source: DG AGRI based on Eurostat

In 2016, the index stood at 85 and had thus fallen by 15 points since the baseline year of 2000, and by 35 points since 1990. The decline has been slowing over time but it remains evident – and has been steeper than the falls recorded for “all common birds” and “common forest birds” in the EU. This is a cause for concern.

Conservation status of habitats and species of EU interest which are dependent on agriculture

A later item of EU environmental legislation - the Habitats Directive³ - complements the Birds Directive by providing protection for a range of plants, animals (other than birds) and habitats which are considered to be of particular importance. A portion of the areas subject to special protection under the two directives are jointly referred to as the Natura 2000 network.

The “status” of the habitats and species covered by the Habitats Directive is recorded periodically. Figure 2 shows the status of protected grassland habitats which depend on agriculture, as recorded for the reporting period 2007 to 2012.

Figure 2: Conservation status of habitats dependent on agriculture

Source: DG AGRI based on JRC – see <https://ec.europa.eu/agriculture/sites/agriculture/files/statistics/facts-figures/agriculture-environment.pdf>

“Favourable” status indicates that a given habitat or species is thriving (in both quality and extent). “Unfavourable-inadequate” status means that a change in management or policy is required to achieve a return the habitat or species to favourable status, but there is no apparent danger of extinction. “Unfavourable-bad” status describes habitats or species in serious danger of becoming extinct, at least within the region concerned.

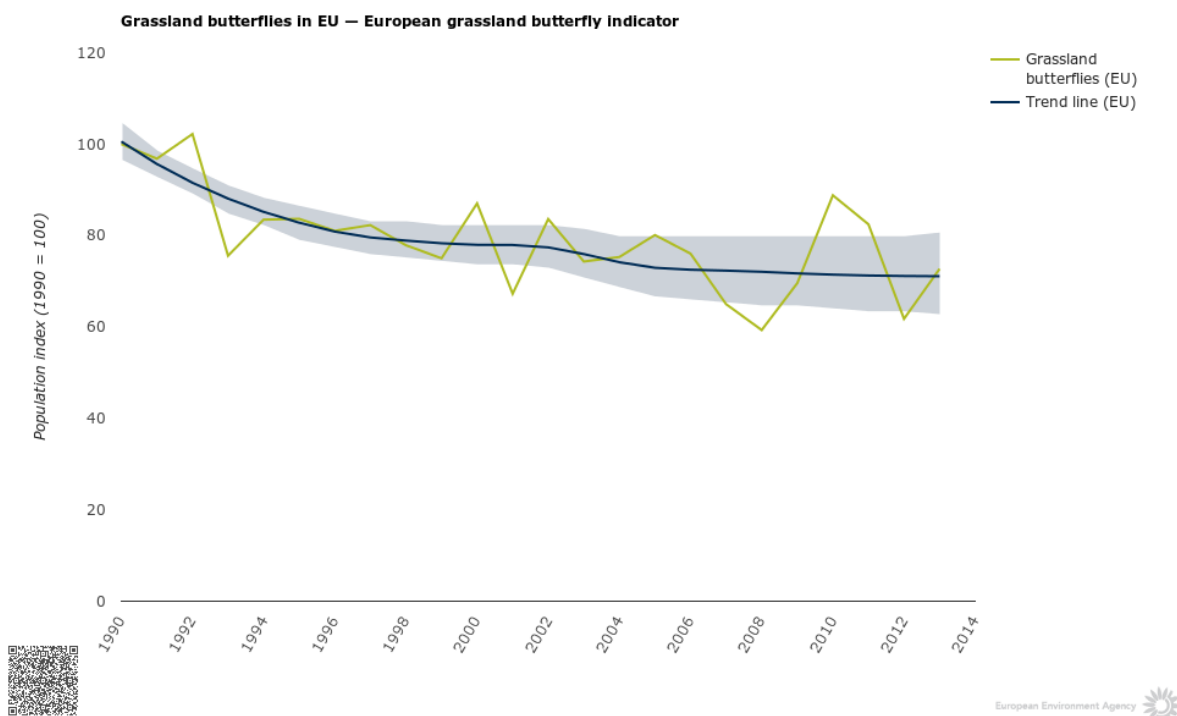
Overall, only 11% of agriculture-dependent habitats and species had “favourable” status in the period 2007-2012. 39% had deteriorated in comparison to the previous reporting period.⁴ Agriculture-related habitats

included a higher proportion of habitats with unfavourable status than any other type of habitat.

Grassland Butterflies Index

Another cause for concern lies in trends in the Grassland Butterflies Index – according to which grassland butterfly populations fell significantly (by 30%) between 1990 and 2013 in the EU (on the basis of data from 21 Member States). The decline has been slower in the last 10 years but remains worrying nonetheless.

Figure 3: Grassland butterflies in the EU



Source: European Environment Agency - https://www.eea.europa.eu/data-and-maps/daviz/european-grassland-butterfly-indicator-2#tab-chart_4

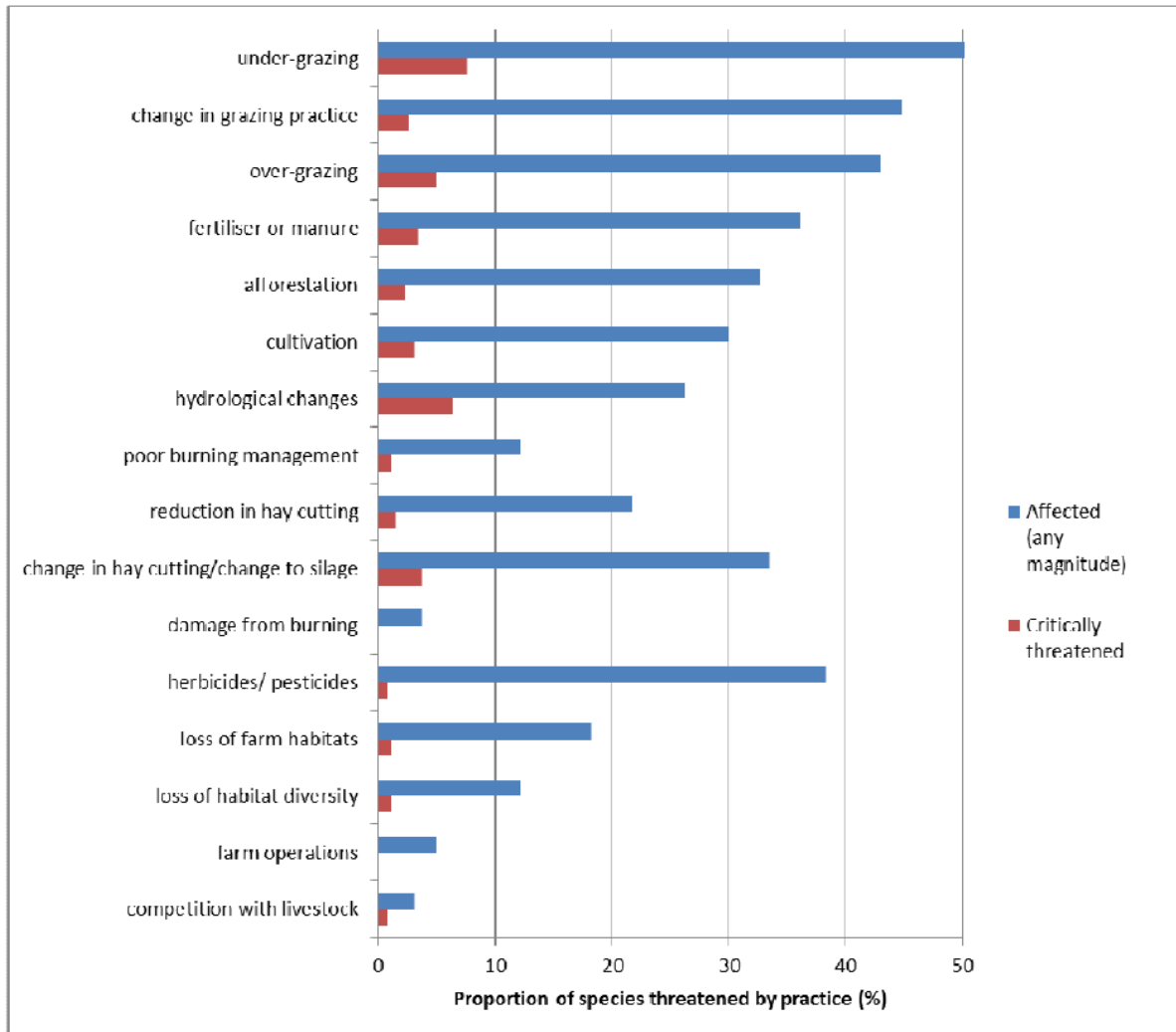
This relatively specific information is important for the general discussion at hand. Insects account for more than 50% of terrestrial biodiversity. And within the general category of insects, butterfly populations are tracked because butterflies are easy to recognise, rely on a network of breeding habitats and are sensitive to changes in those habitats (in terms of intensity of management, land abandonment etc.).

2.2 Overview of the factors affecting farmland biodiversity

A range of factors have an impact on farmland biodiversity. Figure 4 gives an estimate of the proportion of EU farmland species which are “affected” or “threatened” by particular influences. The figures are specific to Natura 2000 areas but nevertheless shed light on the pressures faced by farmland biodiversity in general terms. Some of the factors mentioned are already

familiar to the general public (e.g. use of herbicides/pesticides), but others perhaps less so (e.g. under-grazing).

Figure 4: Key pressures on farmland species



Source: *European Commission* - <http://ec.europa.eu/environment/nature/natura2000/management/docs/FARMING%20FOR%20NATURA%2000-final%20guidance.pdf>

Note that, in this graphic, the term “loss of farm[land] habitats” refers specifically to “loss of farmland habitat **features** – e.g. hedges, stone walls, terraces, rough grass margins, woodlots, trees, ponds, old buildings”. “Loss of habitat diversity” refers to a tendency of crop specialisation, reduced rotations, loss of habitat mosaics through intensification etc.

Full treatments of all the factors affecting farmland biodiversity are widely available.⁵ As stated in section 1, in the remainder of this Brief there will be a **particular focus on the influences related to landscapes, and especially landscape features**. Nevertheless, it should be strongly emphasised here that the issue of biodiversity cannot be reduced to landscapes and their features: it reaches well beyond that.

2.3 Farm landscape features and their loss: filling the information gaps

A number of case studies⁶ point to a major loss of farm landscape features in parts of the EU over several decades – as physical field boundaries of various kinds (e.g. hedges, stone walls, individual trees), mostly linked to traditional farming practices, have been removed, along with other elements of the landscape. Where production systems have been intensified, such landscape features have sometimes been seen as presenting obstacles to farm machinery and operations.

An example of the phenomenon which has prompted concern (and action) comes from the French region of Brittany, which in the past has been strongly characterised by hedgerows. 12% of hedgerows and similar linear features disappeared between 1996 and 2008.

Figure 5: Loss of linear landscape features in Brittany, France

Chaque année, 1 % du linéaire disparaît					
Unité : Kilomètre	Côtes-d'Armor	Finistère	Ille-et-Vilaine	Morbihan	Bretagne
2008	48 299	59 732	38 627	35 868	185 526
1996	54 050	66 841	46 950	39 558	207 398
Evolution en %	- 10,6 %	- 10,6 %	- 17,7 %	- 9,3 %	- 12,0 %
Taux d'évolution annuel moyen	- 0,9 %	- 0,9 %	- 1,6 %	- 0,8 %	- 1,1 %

Source : Agreste - DRAAF Bretagne - Enquêtes régionales Haies 2008 et Haies 1996

Source: Agreste – DRAAF Bretagne – Enquêtes régionales Haies 2008 et Haies 1996 – <http://draaf.bretagne.agriculture.gouv.fr/Enquete-regionale-sur-les-haies>

A key difficulty in assessing this problem is that it has not been tracked systematically in the EU over the long term. However, the last few years have seen attempts at building up a more accurate, pan-EU picture of the situation (e.g. through the LUCAS surveys programme – see pp.9-10).

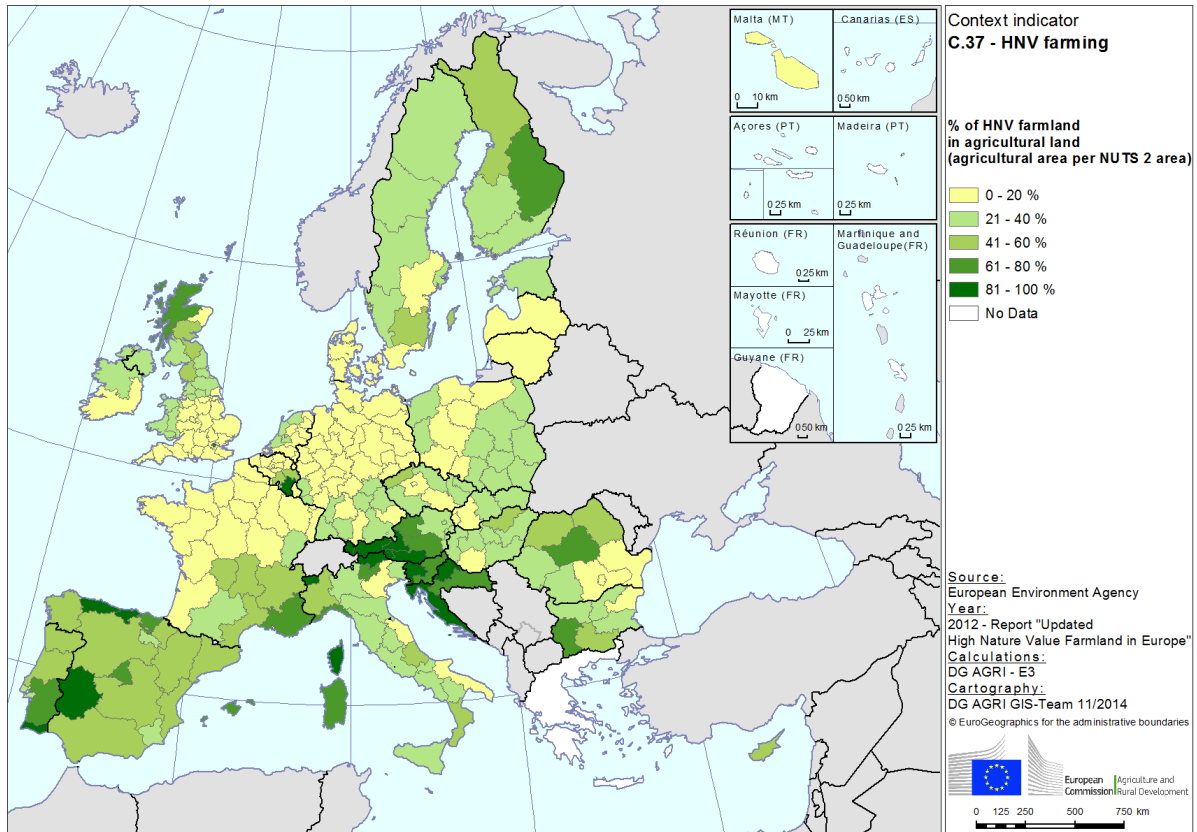
Presence of high-nature-value farming

One such attempt at building a clearer picture has been made through the concept of high-nature-value (HNV) farming – the estimated presence of which potentially tells us something about habitat variety and the presence of farm landscape features.

The concept of HNV farming was developed in the early 1990s. It “refers to the causality between certain types of farming activity and corresponding environmental outcomes, including high levels of biodiversity and the presence of environmentally valuable habitats and species. The dominant feature of HNV farming is low-intensity management, with a significant presence of semi-natural vegetation, in particular extensive grassland. Diversity of land cover, including features such as ponds, hedges, and woodland, is also a

characteristic.”⁷ Examples of HNV farmland include extensively grazed uplands, alpine meadows and steppe, and *dehesas/montados* in Spain/Portugal.

Figure 6: Share of HNV farmland in total UAA by NUTS 2 area, 2012



Source: DG AGRI based on JRC and EEA <https://ec.europa.eu/agriculture/sites/agriculture/files/statistics/facts-figures/land-cover-use.pdf>

Figure 6 shows the **estimated** presence and distribution of HNV farmland per NUTS 2 region⁸, calculated as a share of the utilised agricultural area (UAA). The map is based on an update carried out in 2012 according to a methodology established by the European Commission’s Joint Research Centre and the European Environment Agency.⁹

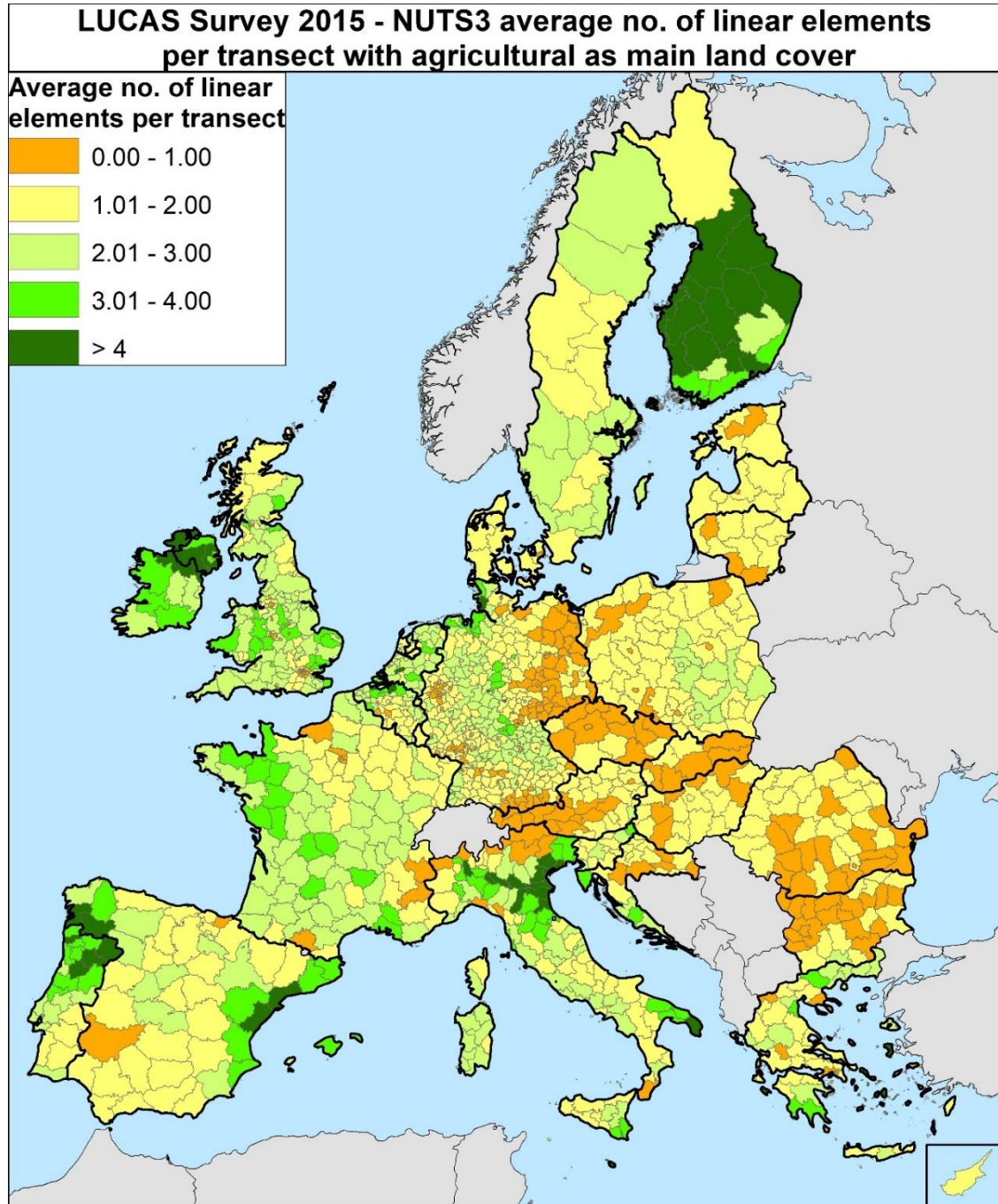
It should be understood that, although the overall concept of HNV farming is clear in essence, it covers a wide variety of landscapes across the EU. Member States submitted data on the presence of HNV farming with the drafts of their 2014-2020 rural development programmes, but without accompanying methodologies (and sometimes without maps).¹⁰

Overall, then, although available information on HNV farming is helpful in some respects, it does not by itself offer a full picture with regard to landscapes.

LUCAS

A further attempt at improving available information on farm landscapes has come through LUCAS – the Land Use and Land Cover Survey¹¹, a harmonised exercise of collecting data on land use and land cover¹² across the whole EU, carried out every three years.

Figure 7: Linear landscape elements recorded by LUCAS Survey



Source: DG AGRI based on JRC - <https://ec.europa.eu/agriculture/sites/agriculture/files/statistics/facts-figures/agriculture-environment.pdf>

LUCAS is an “in situ” survey – i.e. the data concerned are gathered mainly through direct observation by surveyors on the ground. The survey includes information on the presence of linear elements, recorded by surveyors who walk “transects” from a network of points, recording what they find along the way. A new module added to LUCAS in 2018 is intended to improve the information gathered in a similar way on grasslands.

The map in figure 7 shows the density of a wide range of linear features on agricultural land per NUTS 3 region, as recorded in the 2015 survey – expressed as the average number of elements per transect. The colour green indicates higher density; yellow and orange show lower density. In some cases, lower density is related to large Alpine pastures.

The range of linear features included is wide. Examples include hedges, single trees (or avenues of trees), dry stone walls, small ditches and small water bodies.

The data on landscape features provided by LUCAS do not reach far into the past, as the survey was carried out in 2009, 2012 and 2015. However, information which LUCAS provides has the potential to be highly useful for the future.

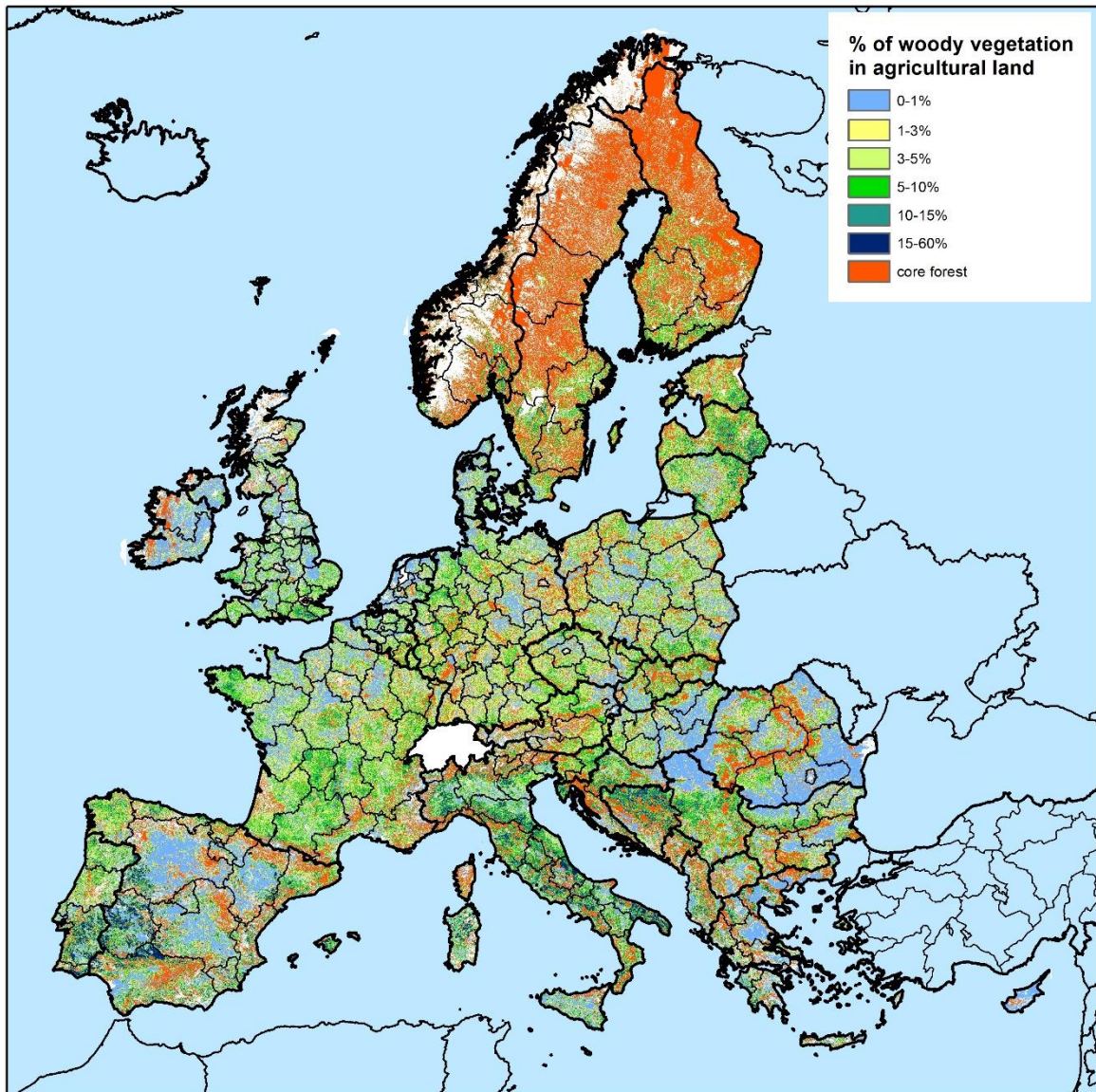
Copernicus

Finally, considerable potential for monitoring the presence of farm landscape features lies in Copernicus – the European satellite-based earth observation programme managed by the European Commission and the European Space Agency.

Figure 8 shows the proportion of woody vegetation (i.e. trees, bushes and shrubs) on EU agricultural land in 2005 – on the basis of satellite images obtained through Copernicus, and modelling.¹³

This information provided by Copernicus has a weakness. The map in figure 8 was produced through the Copernicus Forest High-Resolution layer. This has a spatial resolution of 25m, which means that the map takes no account of smaller woody elements (isolated trees, small groups of trees, herbaceous strips and grassy patches), as the satellites miss these. This implies analytical needs for the future (see final section of this Brief).

Figure 8: Proportion (%) of woody vegetation on agricultural land



Spatial unit: EU river basins. Reference year 2005. Source: DG AGRI based on JRC - <https://ec.europa.eu/agriculture/sites/agriculture/files/statistics/facts-figures/land-cover-use.pdf>

3. In response: what needs to happen “on the ground”?

3.1 General observations

The general issue of what is needed to halt and ideally reverse the decline in farmland biodiversity is well covered in numerous papers every year and will not be addressed in detail in this Brief, which takes a specific focus. Nevertheless, the content of that focus cannot be properly understood without

at least some reference to the whole. Therefore, two essential general points will be recalled here.

On the one hand, just as **agricultural activity** depends heavily on various types of biodiversity (e.g. soil bacteria, breadth of genetic resources in terms of agricultural plants and animals, pollinator insects), so also it plays an important role in the conservation of farmland-dependent habitats and species. The most extreme illustration is an obvious one: if land loses its agricultural function and is built upon (for purposes of accommodation, industry, leisure etc.), of course the farmland habitat disappears, and with it the related species. But in less black-and-white cases – i.e. without a planned change in land use – a decline in agricultural activity can be problematic. As shown in figure 4, “under-grazing” is sometimes a significant threat to farmland biodiversity: low-intensity grazing is important for maintaining overall species richness. This is especially true in many HNV farming systems. The point runs counter to a perception sometimes found in the public mind – that leaving nature to itself will always produce the best results in terms of biodiversity.

However, if farmland habitats and species are to thrive, **agricultural activity must be of the right kind**. Many of the threats to biodiversity listed in figure 4 relate to **intensification** in its various aspects – a fact which brings us close to the heart of a key debate about farming and the environment (and the climate). On the one hand, the main function of agriculture is to provide food. With this in mind, productivity is important – including land productivity. On the other hand, neither farming nor widespread human existence itself has a long-term future unless the economic aspect of overall “sustainability” is kept in balance with the environmental and social aspects. In practice, this means (among other things) that a range of knowledge should be applied to achieve good agricultural yields with lower use of inputs, including water, fertilisers and pesticides. The knowledge in question relates both to new and developing technologies (such as precision and digital farming) and to improved agronomic practices (e.g. appropriate multi-cropping, natural pest control, soil conservation measures). In some cases a move towards a substantially different system of production (such as organic farming or agro-ecology, both of which are based on reducing inputs and enhancing natural processes) is desirable and feasible.

3.2 Landscapes

With particular regard to agricultural landscapes and their features, the following requirements are evident.

Overall, it is necessary to maintain and ideally improve the **variety within agricultural landscapes**. This makes it easier for a healthy mix of species to thrive – including those which depend on a variety of habitats. In this respect, monocultures are not helpful to farmland biodiversity.

A closely related point is that we need to maintain or increase the **quantity of landscape features** on farmland. Very roughly speaking, a greater density of such features can mean a greater presence of habitats and/or better connexions between habitats (the latter being important for the many animal species which are highly mobile). On the other hand, this broad generalisation should not obscure the need for awareness of which types and combinations of landscape features are most appropriate in a given context: different features have different advantages and drawbacks in different circumstances.¹⁴

Finally with regard to landscapes and landscape features, appropriate **maintenance/management** is essential to their value for wildlife: simply retaining or even creating features is not sufficient. For example, in principle an area of fallow land can hold substantial value for biodiversity. This value usually diminishes if plant growth on the area is cut and treated with herbicides and pesticides. By contrast, fallow which is sown with well-chosen plant mixes, without the use of inputs, can have a very high biodiversity value. Where active maintenance needs to be carried out, in many cases the timing of operations can be important (e.g. in the case of mowing).¹⁵

More generally, an essential overall point is that halting and reversing the decline in farmland biodiversity requires a balanced and informed overall approach: addressing only one factor among the many involved (e.g. number of landscape features) will rarely deliver optimal results in any given location.

4. What does this mean for the CAP?

4.1 The need for policy intervention

Agriculture must fulfil its potential role in conserving biodiversity. This is because some aspects of biodiversity are part of the foundation of farming and food production (as pointed out in section 3), and also because some aspects are a “public good”.

In principle, when agriculture fulfils this role, that should bring its own rewards - especially (but not only) in the long term. For example, appropriate multi-cropping not only potentially benefits wildlife but can also assist weed and pest control and increase nitrogen-fixing. Maintaining landscape features can likewise bring economic benefits – for example, once again by helping deal with pests (by sheltering their natural enemies), by encouraging pollination and by reducing soil erosion.

On the other hand, practices which should bring benefits in the long term are sometimes perceived as holding economic disadvantages in the short term. Less intensive practices are sometimes linked with lower yields, while landscape features can be seen as “obstacles” to some farming practices.

This friction between the importance of maintaining biodiversity and its possible or perceived short-term financial implications points to a task for policy. Policy must help to ensure that it makes financial sense for farmers to do now what is necessary for tomorrow for their own future and that of the environment – and that this is clearly understood.

4.2 Key elements of the current policy approach

At present, EU-level policy towards farmland biodiversity operates mainly through the following elements.

Outside the CAP, a body of **EU environmental legislation** which is not specific to agriculture nevertheless provides a role of regulation which often has important implications for farmland. The key examples are the Birds Directive and the Habitats Directive (see pp.3-4). Where particular protective measures are taken in the zones set up under these directives or with regard to certain species, in the case of farmland such measures often involve particular management requirements. Member States decide on these requirements when they implement the directives.¹⁶

Within the CAP, certain biodiversity- and landscape-related obligations are incumbent on all beneficiaries of CAP support which is calculated on the basis of farmed area¹⁷. When the obligations are not met, CAP payments can be reduced. This system of obligations is known as **cross-compliance**. Among the obligations of cross-compliance, some arise directly from EU environmental legislation¹⁸ – and they include farm-relevant provisions from the Natura Directives. Another category of cross-compliance obligations are created by the CAP itself.¹⁹ They include a broad requirement to retain landscape features, as well as to avoid cutting hedges and trees during birds' breeding and rearing seasons. Member States exercise a level of choice in the details of implementing this last requirement. The tendency has been to designate as "protected" under this cross-compliance obligation those landscape features considered to be at risk of destruction from farming activity. This leaves a certain space for other elements of the CAP to support efforts over the retention and management of landscape features – (see following paragraphs).²⁰

Additionally, a layer of payments within the CAP's system of direct income support payment to farmers is highly relevant to biodiversity and landscapes. The layer in question has become informally known as "**green direct payments**" or "**greening payments**".²¹ Essentially, farmers receive their green direct payments when they maintain a certain level of crop diversity on their arable land, maintain permanent grassland, and devote a certain portion of their arable land (labelled "ecological focus area" or "EFA") to biodiversity-friendly practices or features. The list of possible EFA elements includes (among others) fallow land, buffer strips, terraces and other landscape features, as well

as catch crops and nitrogen-fixing crops. Assessments of the implementation of green direct payments point to some successes but note that Member States have often taken “easy” and sometimes “productive” options (e.g. sowing protein crops) for implementing EFA – which have arguably delivered lower-than-hoped benefits for biodiversity. The use of pesticides was initially permitted on EFA but then essentially prohibited in 2017²² after a review of implementation of the greening payments.²³

Within the CAP’s “second pillar” – rural development policy, which Member States and regions implement through rural development “programmes” – a key policy measure used in favour of biodiversity and landscapes lies in **agri-environment-climate measures (AECMs)**. These compensate farmers (and sometimes other land managers) for additional costs and income losses which they incur in voluntarily undertaking agricultural practices that deliver environmental benefits. The practices must go beyond the beneficiary’s already-existing obligations. The range of practices funded by AECMs is very wide; one such which Member States often support in the service of biodiversity is the maintenance of flowering strips on the edge of farmland – of greater size and/or involving more demanding management requirements (e.g. use of appropriate species mixes) than what is required under cross-compliance, the system of green direct payments and any other sources of relevant obligations.

Various other types of support available under CAP Pillar II are relevant to biodiversity and landscapes. In a rare exception to one of the key rules of the CAP, **Natura 2000 payments** offer compensation to farmers for mandatory requirements which arise in Natura 2000 areas from the Habitats and Birds Directives, and which lead to particular disadvantages.²⁴ Support is also available for **investments** of an environmental nature (e.g. building dry-stone walls or planting new hedges) as well as for setting up **agroforestry** systems. Finally, possibilities for financing **training**, the provision of **advice**, **co-operation** and **innovation** are seen as highly important: knowledge is very often the key to combining profit with environmental sustainability.

4.3 Central questions for the future CAP

On 1 June 2018 the European Commission tabled a proposal for a post-2020 CAP – for which one of the proposed objectives would be to “contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes”.²⁵

At the time of writing, this proposal is under discussion by EU Member States (within the Council of the European Union) and the European Parliament. Therefore, this Brief will not enter into the detail of the Commission’s proposal. On the other hand, in this political context it remains appropriate and useful to examine briefly a few central questions and considerations which naturally arise

concerning the future CAP, biodiversity and landscapes. These helped to shape the Commission's proposal and are clearly present in the ongoing debate.²⁶

First, questions can be asked about **obligations on Member States regarding their planned use of CAP funding and its links to EU legislation on biodiversity**. A certain linkage exists already. When designing their rural development programmes, Member States are implicitly expected to take account of the analysis and action plans which they have already carried out and drawn up in the framework of Natura Directives. However, this expectation is not reflected in an explicit legal requirement, and in any case it applies only to the part of the CAP which is currently "programmed" – rural development policy. The question thus arises: do these links need to be improved in any way?

Second, related questions can be asked concerning **obligations at the level of the individual CAP beneficiary** – especially in connexion with **income support**. As already noted, the systems of cross-compliance and green direct payments make farmers' income support payments²⁷ dependent on the respect of certain obligations, some of which concern biodiversity and landscapes. In the very likely scenario that income support continues in future, should its linkage with these obligations change in some way? Are new obligations needed? Or changes to obligations which are already in the list?

Third, considerations arise regarding certain **other types of CAP payment** – i.e. which are not primarily income support *per se* but which, rather, can have or always do have the preservation of biodiversity/landscapes as their primary aim (see earlier list – especially AECMs and Natura 2000 payments). Are any changes needed to the related rules? Or are new types of payment needed – e.g. new kinds of specific environmental payment in CAP Pillar I? Or a rethink about ring-fencing of funding for certain tools?

Fourth, reflections on the future CAP and what it can do for biodiversity and landscapes must encompass the ways in which **each Member State plans/co-ordinates its use of the full range of CAP tools on its territory**. This is particularly important in the case of biodiversity, which is closely related to local conditions. At present, Member States carry out a planning process which covers all the tools of CAP Pillar II (rural development policy), gathering them together into plans ("programmes") which are intended to be coherent. The programmes work on the basis of setting indicator-based targets against objectives, and monitoring progress towards them. CAP Pillar I – especially direct income support payments – operates essentially on a different basis. Does this create a risk of inconsistencies or other weaknesses in Member States' use of CAP tools? If so, how could a more coherent overall approach be forged which would be suitable for both CAP pillars?

Finally, it seems clear that substantial further work is needed on **data** about biodiversity and landscapes, and on how these data are used. There is a very

strong general movement towards basing EU-funded policies more clearly on analysis and results, and the CAP is unlikely to be exempted from this tendency. Moreover, with particular regard to information on biodiversity and landscapes there is obviously room for improvement, as noted earlier in this Brief. Two initiatives in this area can already be identified.

One of the initiatives is the creation of a new indicator intended specifically for the future CAP: the **% of utilised agricultural area covered by landscape features**. The approach to providing this information is currently under development. The indicator could certainly **not** remove the need for a full biodiversity monitoring system, but it could nevertheless be an important element of such a system. Information from Copernicus will be important for the construction of such an indicator – especially when strengthened by the “small woody features” layer being developed, which will be able to pick up woody features that Copernicus currently misses. Additional information will also be necessary, which could perhaps come from LUCAS (subject to analysis being carried out at the time of writing).

The other main initiative in this area involves further work being carried out on the decline in **pollinator populations**.²⁸ The Commission has undertaken to devise and test a pollinator monitoring scheme, to improve available data on the subject and potentially to develop a pollinator indicator. This indicator could perhaps be used within the CAP even though its full range of uses would go beyond that.

Overall, then, much reflection is taking place with regard to biodiversity and farmed landscapes. This is essential given the state of affairs outlined in this Brief. Preserving and restoring farmland biodiversity and the habitats which sustain it is a major challenge for the EU; the CAP must offer very substantial contribution to meeting that challenge.



Endnotes

¹ https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap/key-policy-objectives-future-cap_en

² http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

³ http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

⁴ European Commission (2015). Report from the Commission to the European Parliament and the Council. The Mid-Term Review of the EU Biodiversity Strategy to 2020. COM(2015) 478 final.

<https://ec.europa.eu/transparency/regdoc/rep/1/2015/EN/1-2015-478-EN-F1-1.PDF>

⁵ For an overview and pointers to further reading, see for example Underwood, E.; Poláková, J.; Berman, S.; Dooley, E.; Frelih-Larsen, A.; Kretschmer, B.; Maxted, N.; McConville, A.J.; Naumann, S.; Sarteel, M.; Tostivint, C.; Tucker, G.M.; van der Grijp, N.M. (2013) Technology options for feeding 10 billion people. Climate change and agriculture; biodiversity and agriculture. Report prepared for the STOA Panel of the European Parliament. Contract IP/A/STOA/FWC/2008096/LOT3/C1/SC5. Institute for European Environmental Policy, BIO Intelligence Service, Ecologic Institute, IVM, Brussels/London.

[https://www.europarl.europa.eu/stoa/en/document/IPOL-JOIN_ET\(2013\)513514](https://www.europarl.europa.eu/stoa/en/document/IPOL-JOIN_ET(2013)513514)

⁶ E.g. Deckers, B., Kerselaers, E., Gulinck, H., Muys, B., Hermy, M., 2005. Long-term spatio-temporal dynamics of a hedgerow network landscape in Flanders, Belgium. <https://www.biw.kuleuven.be/lbh/lbni/ecology/pdf-files/pdf-art/bartd/Deckers%20et%20al%20-%20Environmental%20Conservation%202005.pdf>. In addition to scientific papers, more anecdotal evidence of the disappearance of landscape features is often found in popular fiction and non-fiction.

⁷ https://ec.europa.eu/assets/agri/cap-context-indicators/documents/c37_en.pdf

⁸ For an explanation of the Nomenclature of Territorial Units for Statistics (NUTS), see

<https://ec.europa.eu/eurostat/web/nuts/background>

⁹ Paracchini, M. L.; Petersen, J.-E.; Hoogeveen, Y.; Bamps, C.; Burfield, I. and van Swaay, C., 2008. High-Nature-Value Farmland in Europe. An estimate of the distribution patterns on the basis of land cover and biodiversity data, JRC report EUR 23480 EN. <http://publications.jrc.ec.europa.eu/repository/handle/JRC47063>

¹⁰ Rural development programmes are strategic programmes through which EU Member States (and sometimes regions) plan their use of CAP funding which is available to them under the CAP's "second pillar" – rural development policy (see section 3 of this Brief). For further information about data on HNV farmland within rural development programmes, see https://enrd.ec.europa.eu/evaluation/publications/hnv-farming-indicator-rdps-2014-2020-overview-survey_en

¹¹ Information on LUCAS survey: https://ec.europa.eu/eurostat/statistics-explained/index.php/LUCAS_-_Land_use_and_land_cover_survey

¹² In this context "land use" refers to the socio-economic use made of land – e.g. agriculture, commerce, residential purposes, recreation; "land cover" refers to biophysical coverage – e.g. natural areas, forests, buildings and roads, or lakes.

¹³ The map also displays "core forest", but this is **not** agricultural land.

¹⁴ See, for example, Tzilivakis, J., Warner, D.J., Green, A. and Lewis, K.A. (2015) Guidance and tool to support farmers in taking aware decisions on Ecological Focus Areas. Final report for Project

JRC/IPR/2014/H.4/0022/NC. Joint Research Centre (JRC), European Commission:

https://ec.europa.eu/jrc/sites/jrcsh/files/ReqNo_JRC99673_final_report.pdf

¹⁵ Underwood, E. and Tucker, G. (2016) Ecological Focus Area choices and their potential impacts on biodiversity. Report for BirdLife Europe and the European Environmental Bureau, Institute for European Environmental Policy, London. <http://eeb.org/publications/53/farming/2243/ecological-focus-area-choices-and-their-potential-impacts-on-biodiversity-ieep.pdf%20>

¹⁶ Implementing the directives need not involve only mandatory obligations for farmers: Member States can also use funded measures in which farmers are free to participate or not – where Member States believe they can thereby achieve the objectives of the directives. Such measures traditionally include agri-environment-climate measures (AECMs) under the CAP – see p15.

¹⁷ Or in certain limited cases, on the basis of animal numbers.

¹⁸ In the jargon of the CAP, these are referred to as Statutory Management Requirements (SMRs).

¹⁹ These are standards of Good Agricultural and Environmental Condition (GAEC). For the list of current SMRs and GAEC standards, see Annex II of the following regulation: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:347:0549:0607:en:PDF>

²⁰ It is also a significant point in itself that the area-based calculation of a given farmer's CAP income support does not exclude landscape features on this area (up to a point), even where these are not directly "productive" in an agricultural sense (e.g. a tree in the middle of arable land is not itself producing crops). The theoretical alternative of excluding such elements completely from the support calculation, thereby reducing a given farmer's payment, would probably send farmers a very negative message about the value placed on biodiversity and landscapes.

²¹ Formally, "payments for agricultural practices beneficial for the climate and the environment" – see Articles 43 to 47 of the following regulation: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:347:0608:0670:EN:PDF>

²² Through Regulation 1155/2017, the preamble of which mentions the Mid-Term Review of the EU's Biodiversity Strategy – see https://eur-lex.europa.eu/eli/reg_del/2017/1155/oj

²³ European Commission (2016). Report from the Commission to the European Parliament and the Council on the implementation of the ecological focus area obligation under the green direct payment scheme. COM(2017) 152 final.

²⁴ Under the "Polluter Pays" Principle, the CAP does not usually offer compensation for respecting mandatory requirements. An exception is made in the case of Natura 2000 payments because obligations arise from the Natura Directives in a very localised manner which leads to localised disadvantages – and helping the farmers concerned to withstand the impact of these assists the proper maintenance of the Natura 2000 network.

²⁵ For the legislative proposals and accompanying impact assessment, see: <https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap>

²⁶ For further information on environment- and climate-related aspects of the Commission's proposal for the future CAP, see: https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/cap-post-2020-enviro-benefits-simplification_en.pdf

²⁷ As well as other area- and animal-based payments, in the case of cross-compliance.

²⁸ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52018DC0395>