

HNV farming in England and Wales

– findings from three local projects



European Forum on
Nature Conservation
and Pastoralism



*The Stapledon
Memorial Trust*



**Blackdown
Hills AONB**





Cover photograph: English Longhorn cattle restoring herb-rich pasture in the Neroche Forest, Blackdown Hills AONB (G. Saunders)

HNV farming in England and Wales –findings from three local projects

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For more information visit
<http://www.efncp.org/projects/united-kingdom/>

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4	Glossary	22	What the projects did
4	Summary	23	How can HNV farming be identified using existing or proposed data sets?
7	Introduction	28	What are the challenges faced by HNV farmland in the project areas?
8	HNV farming in EU policies	32	Are current policies effective in maintaining HNV farmland?
10	HNV farmland typology	37	What specific policy improvements and innovative approaches can be proposed for addressing HNV farmland?
12	HNV farming in the UK	41	Conclusions and ways forward
14	HNV farming in national policies in England and Wales		
16	The project areas in England and Wales and their HNV farming characteristics		

Glossary

AES	Agri-environment Scheme
AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
CAP	Common Agricultural Policy
CCW	Countryside Council for Wales
CMEF	Common Monitoring and Evaluation Framework
CWS	County Wildlife Site
DWT	Devon Wildlife Trust
EFNCP	European Forum on Nature Conservation and Pastoralism
EIA	Environmental Impact Assessment
ELS	Entry Level Stewardship
ESA	Environmentally Sensitive Areas (agri-environment scheme)
EU	European Union
FBI	Farm Business Income
HAT	Holding Assessment Toolkit
HIW	Habitat Inventory Wales
HLS	Higher Level Stewardship
HNV	High Nature Value
IACS	Integrated Administration and Control System
LCM	Land Cover Map
LFA	Less Favoured Area
LPIS	Land Parcel Identification System
LU	Livestock Unit
NVC	National Vegetation Classification
NE	Natural England
RDP	Rural Development Programme
RLR	Rural Land Register
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation (Natura 2000 site)
SDA	Severely Disadvantaged Area (of the LFA)
SPS	Single Payment Scheme
SSSI	Site of Special Scientific Interest
UAA	Utilised Agricultural Area

Summary

Landscapes that contain a significant proportion of farmland in a semi-natural condition, such as unimproved pastures and hay-meadows or traditional orchards, are inherently of high biological richness, and have become known as High Nature Value (HNV) farmland. These are the types of farmland that harbour our most valued habitats and wildlife species. If we are serious about halting biodiversity decline across Europe, we need to look closely at what is happening to this farmland.

This brochure presents the findings of a set of local projects in England and Wales that aimed to do precisely this – to look closely at what types of farmland and farming are of high nature value, what is happening to them, and what needs to be done through public policies for farming and rural development to prevent their on-going decline. The brochure is aimed at anyone involved in or interested in these policies and in their success in supporting nature conservation and wider ecosystem services on farmland.

Identifying, supporting and monitoring HNV farmland and farming systems have been priorities for EU rural development policy since 2005. Putting these priorities into practice at a country level means recognising:

- that farmland and farming landscapes which are largely semi-natural are of particular value for biodiversity
- that although this land makes up a large part of existing designations such as Natura 2000, SSSI and county sites, in some regions it also extends far beyond them into the “wider countryside”
- that this land faces particular economic and practical challenges for its continued use and maintenance, and often is found outwith mainstream farming

These key themes of HNV farmland chime very clearly with the findings of recent reports such as the *National Ecosystem Assessment*¹ (semi-natural grasslands chapter led by James M. Bullock), *Making Space for Nature: a review of England's wildlife sites and ecological network*² (the Lawton report to DEFRA), and *Nature's Tapestry*³ (Grassland Trust).

So what should happen to our semi-natural farmland?

The economic benefits to society of ploughing and reseeded the few remaining small areas with significant productive potential have to be weighed against the losses of ecosystem services and biodiversity. Abandonment or tree planting will result in similar losses, and give rise to closed landscapes, less accessible for recreation and enjoyment.

Keeping this land in use for low-intensity livestock production would seem to be the best option for society, but can this be achieved? Can ways be found of ensuring the socio-economic viability of active farming on this land in a way that maintains its nature values, particularly on a landscape scale? Do existing policies (agricultural, rural development, nature conservation) provide the means to achieve this goal in their current form? These are some of the questions the HNV farming approach tries to answer.

To date, neither England nor Wales can claim to be fulfilling the requirements of EU policy as it refers to HNV farming, partly due to a lack of clarity about where to start. There has been some preliminary work on mapping, but no comprehensive assessment of what is HNV farmland and farming, or of what is happening to it, and very little dialogue has been promoted on the subject. Monitoring systems for HNV farmland have not been established.

In practice, a lot is being done in both countries to maintain HNV farmland, mainly through agri-environment schemes (AES), and this is to be applauded. But current policies are falling short – large parts of HNV farmland and its associated issues are not being addressed adequately by the existing schemes, as the local projects in this brochure make clear.

Fully implementing a strategy for HNV farmland does not mean a wholesale reshaping of policies for farmland biodiversity, but it does imply some refocusing and adaptation. The projects presented here reveal a web of

issues that need to be addressed, from the basic design of mainstream CAP payments, to consistent RDP funding for local initiatives. The following are key recommendations emerging from the projects:

- Undertake an assessment at national level of what is HNV farmland and farming, what is the current situation, what are the main trends, threats and opportunities. A lot can be drawn from existing national and local data and studies.
- Establish a HNV farmland monitoring system as required by the EU, through a combination of remote sensing and sample survey. The UK countries are well placed to do this, as Countryside Survey could provide an excellent basis, and the Habitat Inventory Wales is shown to be an effective remote sensing tool in the Carmarthenshire project presented here.
- Adapt mainstream CAP (Pillar 1) to the needs of HNV farmland, so that the payments are effective in preventing abandonment, and the regulations effective in preventing intensification. The current CAP reform process provides an excellent opportunity, but there needs to be a robust UK stance with the EC on cross-compliance, “greening” and eligibility issues, especially concerning permanent pastures. A more environmentally efficient CAP also depends on making the LPIS/IACS tools fit for purpose.
- The new RDPs in England and Wales from 2014 should give explicit recognition in their ex-ante analyses to the processes of abandonment and intensification occurring on semi-natural farmland outside nationally designated sites; and should aim to prevent further loss of HNV farmland to abandonment, agricultural intensification and development.
- AES should be developed further to achieve a complete coverage of HNV farmland. This means reducing

¹ <http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx>

² <http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf>

³ <http://www.grasslands-trust.org/project.php?projectid=7>

administrative complexity and improving delivery, with sufficient human resources available on the ground to facilitate and encourage up-take of measures and create a critical mass of activity at the landscape scale. Practical challenges to grassland management need to be recognised, e.g. through automatic higher payments for smaller fields. Grant schemes need to reach beyond mainstream farming, particularly for capital investments in grazing infrastructure.

- Grant schemes should encourage the development of farm business activities based on HNV farmland. This requires more integration across RDP measures, so that semi-natural farmland is not automatically hived off as a “habitat” separate from the main farming activity and under dictated “management prescriptions”. Where possible, support should be provided for using this land within a farming business, e.g. grant aid for businesses that “valorise” HNV farmland, alongside AES incentives for managing this land. The new rural development regulation proposed by the EC already encourages more integrated approaches.
- In areas where a large part of HNV farmland is found on amateur holdings and is thus largely beyond the reach of mainstream policy, conserving this land in active management depends very much on local community projects and small grant schemes. There is a wealth of such projects around the country, but typically these depend on insecure funding sources, with consequent lack of continuity. RDPs should include a facility for funding local projects that provide co-ordinated, proactive approaches to HNV farmland maintenance within a landscape area. An excellent opportunity is available under the new EU regulation for RDPs in the form of grants for Co-operation Projects, including “collective approaches to environmental projects and ongoing environmental practices”.

The projects presented in this brochure provide some insights and suggestions as to how effective systems could be established for identifying, monitoring and supporting HNV farmland. The projects are not exhaustive, and certainly are not the last word on HNV farming and rural

development policy. But there is no reason to think that the issues they identify, both problems and opportunities, are not replicated across large areas of England and Wales, and indeed Scotland and Northern Ireland.



Figure 1. Although sometimes seen as positive for nature, land abandonment tends to occur on land that is already of biodiversity value. (G. Jones)

Introduction

Landscapes that contain a significant proportion of farmland in a semi-natural condition, such as unimproved pastures and hay-meadows or traditional orchards, are inherently of high biological richness, and have become known as High Nature Value (HNV) farmland. These are the types of farmland that harbour our most valued habitats and wildlife species, in the UK and across the EU. If we are serious about halting biodiversity decline in Europe, we need to look closely at what is happening to this farmland.

Semi-natural farmland has declined in area over many years, due to a parallel process of agricultural intensification on land with more production potential, and abandonment of land with production limitations. At one extreme, this process can be seen today at the scale of entire landscapes, for example in some areas of southern and eastern Europe. In lowland England and Wales the more typical pattern is at the scale of individual fields, although in the uplands there is a real possibility of landscape-scale abandonment.

Recent reports such as the *National Ecosystem Assessment*⁴ (semi-natural grasslands chapter led by James M. Bullock), *Making Space for Nature: a review of England's wildlife sites and ecological network*⁵ (the Lawton report to DEFRA), and *Nature's Tapestry*⁶ (Grassland Trust) have emphasised the

valuable ecosystem services of semi-natural farmland, as well as its continued decline. They also highlight the key issue, especially into the future, of under-use due to the lack of economic viability of the low-intensity and low-productivity farming systems that use this land.

So what should happen to our remaining semi-natural farmland? The economic benefits to society of ploughing and reseeding the few remaining small areas with significant productive potential have to be weighed against the losses of ecosystem services and biodiversity, not least for the priority habitats and species that depend on this land. On land with less productive potential, abandonment or tree planting will result in similar losses of biodiversity, and will give rise to closed landscapes, less accessible for recreation and enjoyment. Keeping this land in use for low-intensity livestock production would seem to be the best option for society, but can this be achieved?

The HNV farming concept looks for answers to this question. Semi-natural pastures, meadows and orchards are the core of HNV farmland and are seen not as wildlife habitats separate from farming, but as a part of a functioning landscape where semi-improved grassland and low-intensity cropping, and features such as thick hedges and patches of scrub and woodland, complement the biodiversity values of the semi-natural farmland.



Figure 2. The Twrch valley in east Carmarthenshire illustrates upland and poorly-drained lowland grassland types of HNV farmland in the area (G. Jones).

According to the HNV farming approach, it is unrealistic to expect to conserve our remaining semi-natural farmland resource entirely by protected areas and “conservation grazing” projects separated from mainstream farming. So can ways be found of ensuring the socio-economic viability of active farming on this land in a way that maintains its nature values, particularly on a landscape scale? Do existing policies (agricultural, rural development, nature conservation) provide the means to achieve this goal in their current form? If not, what improvements are needed? Answering these questions is central to the HNV farming approach.

Identifying, supporting and monitoring HNV farmland and farming systems has been a priority for EU rural development policy since 2005, and the European Forum on Nature Conservation and Pastoralism (EFNCP) has been closely involved in the development of suitable approaches to these tasks at European, national and local levels. Exploring how this should work through real examples at local level is an essential complement to national and EU desk studies.

In 2010, EFNCP joined up with local partners to run a series of projects to explore HNV farming at a local level in England, Wales, Ireland and France. These projects aim to explore how HNV farmland and farming systems can be identified and their socio-economic needs assessed, as the basis for developing strategies for their effective long-term support. This brochure summarises the findings of three projects undertaken in England and Wales in 2010 and 2011, in Devon, the Wye Valley, and east Carmarthenshire.

HNV farming in EU policies

Under the EU Biodiversity Strategy, the Commission emphasised in 1998 that biodiversity cannot be conserved solely through the Natura 2000 network. A wider environment favourable to biodiversity is essential, and key actions highlighted for maintaining this wider environment include preventing intensification or abandonment of HNV farmland, by making better use of available measures under the CAP.

In the new Biodiversity Strategy 2020, HNV farmland is not referred to explicitly, but there is a strong focus on maintaining ecosystems and green infrastructure outwith the Natura 2000 network. Clearly a large proportion of these ecosystems and green infrastructure will coincide with HNV farmland. Moreover, 20% of the habitats on Annex 1 of the Habitats Directive are pastures and meadows dependent to a greater or lesser extent on livestock farming.

The EU has also adopted HNV farming as one of three priorities for Axis 2 of Rural Development Programmes (RDPs) from 2006 with the introduction of the following wording into the Strategic Guidelines⁷ on rural development:

*“To protect and enhance the EU’s natural resources and landscapes in rural areas, the resources devoted to Axis 2 should contribute to three EU-level priority areas: biodiversity and the **preservation and development of high nature value farming and forestry systems and traditional agricultural landscapes** (. . .)” (bold added)*

At the same time, HNV farming and forestry indicators were established as part of the Common Monitoring and Evaluation Framework (CMEF) for RDPs. These indicators are applied to assess the results and impacts of RDPs in all countries. Member States are required to devise a system of “impact indicators” for measuring tendencies in the extent and condition of HNV farmland and forestry. They should also establish “results indicators” for assessing the extent of land under successful land management contributing to:

- biodiversity and high nature value farming/forestry
- avoidance of marginalisation and land abandonment

⁴ <http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx>

⁵ <http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf>

⁶ <http://www.grasslands-trust.org/project.php?projectid=7>

⁷ Council decision 2006/144 on Community strategic guidelines for rural development (programming period 2007 to 2013)

At the time when these new requirements were introduced into EU policy, there was little information available to authorities on how to identify HNV farming, or how to devise suitable indicators and monitoring systems. Subsequently, the European Evaluation Network for Rural Development (EENRD) Help Desk produced guidelines for the application of HNV indicators⁸, that are intended to help Member States to assess the baseline situation of HNV farming and to monitor how it evolves over time.

In 2010, the Help Desk organised a Thematic Working Group of experts to develop guidance on the application of all CMEF indicators, including the HNV indicators. The report of this group adds further practical detail and examples of current practice to the 2009 guidance⁹.

Under the Commission's proposals for CAP reform released in October 2011¹⁰, HNV farming continues to be included as a priority for rural development policy, now appearing alongside Natura 2000 under a broader theme of "restoring, preserving and enhancing ecosystems

dependent on agriculture and forestry". There is strong emphasis in the proposed rural development regulation¹¹ on the need for RDPs to show a robust analysis, in relation to each priority, of the challenges existing on the ground.

So putting these various policy elements together, the requirements established at EU level for all Member States to take forward can be summarised as:

- To determine what is HNV farmland and how to identify its extent and approximate location (there are no EU rules for this, there is national flexibility within broad EU guidance).
- To assess the challenges to maintaining HNV farmland.
- To develop and implement effective policy measures for supporting the farming systems and practices that maintain HNV farmland.
- To establish a system of indicators for monitoring tendencies in HNV farmland and assessing the effectiveness of RDPs in achieving positive tendencies.

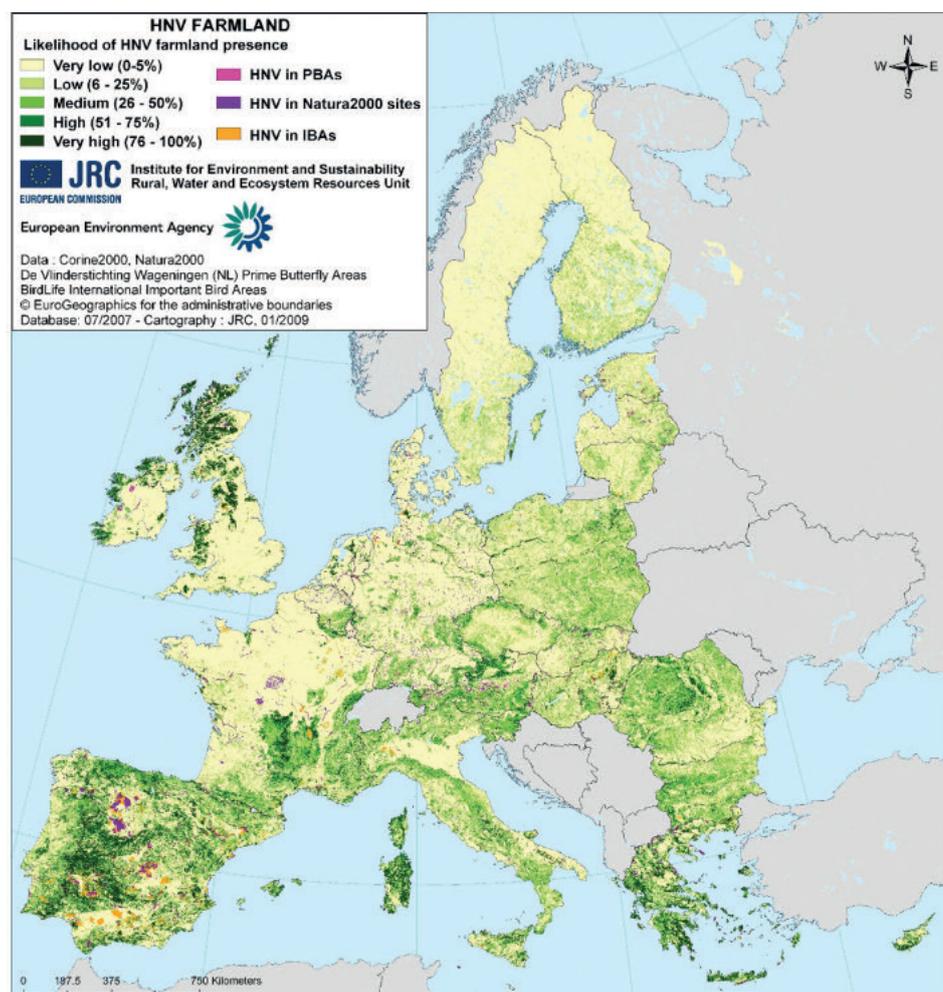


Figure 3. High Nature Value Farmland in Europe – An estimate of the distribution patterns on the basis of land cover and biodiversity data (source¹²)

⁸ Beaufoy, G. And Cooper, T., 2008. Guidance Document to the Member States on the Application of the HNV Impact Indicator.

⁹ Development Programmes in the context of multiple intervening factors. Findings of a Thematic Working Group established and coordinated by The European Evaluation Network for Rural Development.

¹⁰ http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm

¹¹ Proposed EAFRD regulation (COM(2011)627/3)

¹² 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. European Commission Joint Research Centre, Institute for Environment and Sustainability. EUR 23480 EN. Office for Official Publications of the European Communities, Luxembourg. <http://agrienv.jrc.ec.europa.eu/publications-ECpubs.htm>

It is important to distinguish between tools for targeting policy measures (such as payments) on HNV farmland, and tools for monitoring tendencies in HNV farmland (e.g. extent, condition). Although there may be an overlap in the data and methods used, there are significant differences in the practical requirements. Effective targeting of policy measures requires quite precise information at the farm or even field level; whereas monitoring of tendencies on farmland at the regional or national level may be achieved to some extent through sample surveys (such as the Countryside Survey), and/or through national data sets (such as farm census).

But before trying to tackle the challenges of both targeting and monitoring HNV farmland, there needs to be some exploration of what HNV farmland is in a given region, where it is, and what are its broad characteristics and tendencies. Authorities in many Member States, and the European Environment Agency at EU level, have explored the possibilities for mapping HNV farmland, as a first step in this assessment exercise. In many cases the results are found to be unsuitable for targeting payments, or for monitoring tendencies, at anything other than a very crude level; but they have served to give a broad picture of HNV farmland distribution, and to improve understanding of what existing data sets can tell us, and cannot tell us (see Fig. 3).



Figure 4: Scrub, gorse and grassland mosaic, South Devon

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HNV farmland typology

The broad types and characteristics of HNV farmland have been clarified through various European studies¹³. Landscapes consisting predominantly of semi-natural farmland have been labelled “Type 1” HNV farmland; these are a relatively clear-cut case, and are widespread and quite easily identified in the more marginal regions of Europe.

High nature values may also be present in landscapes where a smaller but still significant proportion of farmland is in a semi-natural state, especially when found in a mosaic with semi-improved grassland and/or low-intensity arable cropping. In this situation of fragmented semi-natural farmland, landscape elements such as hedges and copses can make a particularly important contribution. This has been labelled “Type 2” HNV farmland.

Biodiversity decreases with increased intensity of farm management - landscapes dominated by intensified farmland are usually devoid of significant biodiversity. Wildlife habitats are reduced to fragments divorced from the farming system (hedges, ponds, small woods). However, some of the species which survive can be of conservation concern. In most cases, these are birds, which are better able than other forms of wildlife to adapt to more intensively farmed landscapes. Intensive farmland with minimal or no semi-natural component sometimes supports significant populations of such species at certain times of year – wintering geese are one example. This has been labelled “Type 3” HNV farmland.

There is no hard line between Type 1 and Type 2 HNV farmland. Whereas predominantly semi-natural landscapes are relatively easy to identify and determine as HNV farmland, the Type 2 situation is less clear cut – at some point, the proportion of semi-natural habitat becomes so small that opportunities for wildlife fall away, but determining this point is something of a value judgment. See Box 1.

How much land should be in a semi-natural state for a landscape to be considered of High Nature Value? This will of course depend on local conditions, on the species that are of conservation interest in the landscape in question,

and on their particular ecological requirements. Crucially, it also depends on the nature of the non-semi-natural land in the matrix. An area of semi-improved grassland surrounding or adjacent to semi-natural grassland can act as a buffer from nitrogen and biocides, as well as allowing colonisation from the semi-natural seed sources. A field of maize, for example, does not provide these complementary benefits. Arable fields under low-intensity use, and with characteristics such as winter stubbles, can also contribute to the nature value of Type 2 HNV farmland. Other considerations include the size of semi-natural patches, and the distance between them; and the presence of landscape features such as large hedges and patches of woodland.



Figure 5: Male cirl bunting, emblematic species of South Devon HNV farmland (Andy Hay, rspb-images.com)

BOX 1

HNV farming landscapes and semi-natural vegetation

The proportion of semi-natural vegetation on farmland is critical to its biodiversity value, and can vary greatly from one landscape to another. Tschardt et al. (2005)¹⁵ refer to landscapes with less than 2% semi-natural habitats as “cleared” landscapes, where the effectiveness of conservation is limited by the basic absence of species sources. Landscapes with 2–20% semi-natural habitat in the matrix are referred to as “structurally simple” landscapes, where species sources are still present and conservation initiatives can achieve good results. In “complex” landscapes

with more than 20% semi-natural habitats, the productive area is continually colonised by species from the surrounding species-rich landscape.

Le Roux et al., 2008¹⁵ consider 20% to be the minimum threshold for maintaining significant biodiversity on farmland. They found that in areas of more intensive arable cropping in France (*grandes cultures*), semi-natural cover can fall to well below 10% of the Utilised Agricultural Area (UAA), while in some predominantly grassland areas, it can be over 50%.

¹³ Andersen, E., Baldock, D., Bennett, H., Beaufoy, G., Bignal, E., Brouwer, F., Elbersen, B., Eiden, G., Godeschalk, F., Jones, G., McCracken, D.I., Nieuwenhuizen, W., van Eupen, M., Hennekens, S. & Zervas, G. (2003). Developing a high nature value indicator. Report for the European Environment Agency, Copenhagen.

¹⁴ Tschardt, T. et al. (2005) Landscape perspectives on agricultural intensification and biodiversity – ecosystem service management. *Ecol. Lett.* 8, 857–874

¹⁵ Le Roux, X., Barbault, R., Baudry, J., F. Burel, F., Doussan, I., Garnier, E., Herzog, F., Lavorel, S., Lifran, R., Roger-Estrade, J., Sarthou, J.P. and Trommetter, M. (eds), 2008. *Agriculture et biodiversité : valoriser les synergies*. Expertise scientifique collective, synthèse du rapport, INRA (France).

¹⁶ R. Nigel Stringer, A History of Waxcap recording in Carmarthenshire. <http://www.aber.ac.uk/waxcap/downloads/stringer-historywaxcaprecarms09.pdf>

HNV farming in the UK

There has been no UK-wide assessment of HNV farmland – the following is drawn from the UK chapter in Oppermann, Beaufoy and Jones (eds.), 2012¹⁷. The predominant HNV farmland existing at the landscape scale in the UK consists of semi-natural pastures under low-intensity livestock raising (almost entirely sheep and suckler cattle), i.e. Type 1 HNV farmland. The main areas are found in the uplands of the north and west (see sketch map in Fig. 6, alongside the distribution map of UK NEA semi-natural grasslands).

The dominant pasture communities vary regionally, but include blanket bog (Habitats Directive Annex 1 biotope 7130); wet and dry heaths (e.g. 4010, 4030, 4060) and species-poor *Molinia caerulea*, *Nardus stricta* and *Festuca ovina* grasslands not included on Annex 1. Locally there are examples of calcareous grassland, upland hay meadows

and other habitats of EU importance. Common grazing is an important farming characteristic associated with the low-intensity livestock systems in these areas, accounting for over 1.16 million ha.

In lowland Britain, landscape-scale semi-natural farmland is rare, consisting of localised grazing of saltmarshes (Annex 1 biotope 1330); scarp slopes (e.g. 6210 on chalk); floodplains; raised bogs (mostly 7120) and heaths (e.g. 4020). Such locally-distinctive habitats also occur in the low ground of the north and west, e.g. Cornish heaths (4040), and machair in north-west Scotland (21A0). An unusual survival of historic land use patterns is the grazed woodland of the New Forest and Forest of Dean.

Otherwise, semi-natural farmland in the lowlands is normally present only at the field scale, for example in the

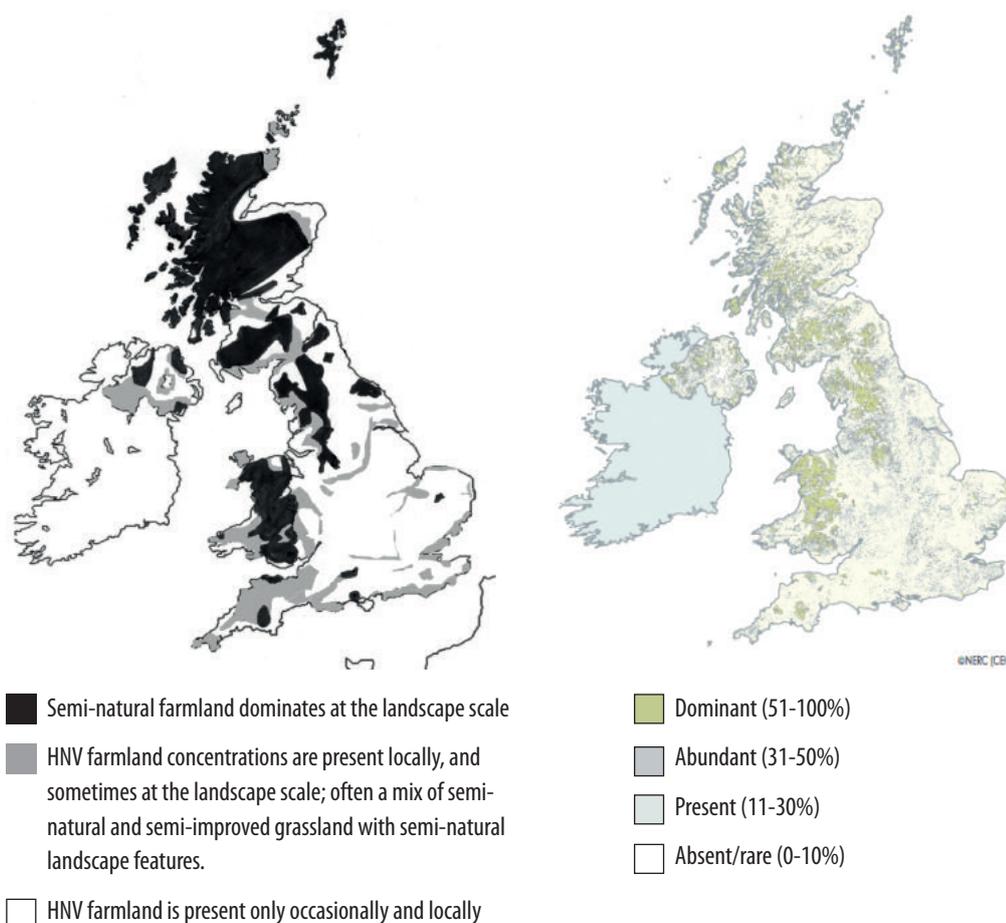


Figure 6.

A) Sketch map of approximate HNV farming distribution in the UK (source¹⁷).

B) Distribution of UK NEA Semi-natural Grasslands habitat – percent cover per 1 km cell (source¹⁸).

¹⁷ High Nature Value farmland in Europe, 35 countries – experiences and perspectives. Verlag regionalkultur, Ubstadt-Weiher, Germany.

¹⁸ <http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx>

form of fragmented remnants of semi-natural grassland and traditional orchards. This land may be grazed by sheep or suckler cattle, often under conservation grazing projects, or sometimes by horses on “hobby” or “amateur” land holdings. In these areas, field boundaries (hedges, dry-stone walls, earth banks) and road verges are significant seed sources, as well as habitats in their own right.

In the grey areas shown in Fig. 6, mainly in the western parts of the UK, the physical limitations to arable cropping mean that the predominant farmland is permanent grassland, with a wide spectrum of intensity of use from highly intensive to semi-natural. Locally there are significant areas of semi-improved grassland in smaller field patterns, often associated with smaller patches of semi-natural grassland, and with a high presence of landscape features, such as large hedges – potentially HNV farmland. Generally these patterns have avoided wholesale intensification due to physical limitations, such as steep slopes, or in some cases also where early industrialisation or the proximity of cities reduced the interest in developing farming. Examples of this are found in the south Wales and west-central Scottish coalfields.

Distinguishing HNV from non-HNV farmland in these grassland regions is a difficult judgement, particularly in the case of semi-improved grassland. In some cases, grasslands that have been ploughed and improved several decades ago have reverted to a broadly semi-natural condition after a long period of low-intensity use (for example, < 25 kg fertilizer N ha⁻¹ per year, cutting for hay, grazing at < 1 LU ha⁻¹). On the other hand, grasslands that have never been ploughed and reseeded may lose most of their higher plant species diversity simply as a result of repeated manuring, whether by the application of fertiliser or by intensive grazing.

Conservation policy has tended to identify priority grassland in terms of the botanical species they support. But grassland types that do not meet Biodiversity Action Plan (BAP) criteria as priority habitats, or are not designated as prime sites, are often an important part of a landscape matrix that is rich in wildlife. Semi-improved grassland can play an important role in buffering remnants of semi-natural grassland and allowing for recolonisation



Figure 7. Waxcap communities are dependant on grasslands with very low nutrient levels and with grazing by sheep, cattle or other livestock. No correlation has been found between waxcap diversity and sites with high plant diversity. In fact, higher waxcap diversity seems to occur most often in semi-improved and botanically mundane grasslands (those not considered for SSSI selection).¹⁶

Photograph: © Rosemary Winnall. Image licensed under the Creative Commons Attribution-Share Alike 2.5 Generic license.

from these remnants. Many species of birds, butterflies and bats depend partly on semi-improved, tussocky, insect-rich grasslands that are not necessarily botanically rich, but provide valuable foraging habitat. An area of poorly drained yet species-poor grassland may be surrounded by tall hedges and hedgerow trees; the ecological juxtaposition of these two habitats is far greater than the sum of their parts. They provide an ecotone rich in invertebrates and bird life.

A long history of relatively intensive grazing produces pastures which are floristically poor from a higher plant perspective, but may support diverse populations of invertebrates, soil organisms, and fungi including waxcaps (see Fig. 7). In a mosaic of habitats grasslands have a role that is more complex than just their species diversity; their structure is also crucially important (as illustrated by Fig. 8). Structure includes the height and architectural complexity of the canopy comprising leaves, stems, flowers, seed heads, and senescent and dead plant parts, all of which provide micro-habitats for different invertebrate guilds, such as stem borers and leaf miners, and predators such as spiders. These considerations should be recognised within the concept of HNV farmland.

Low-intensity arable cropping survives in certain very

specific locations in the UK, as part of a HNV mosaic. A particular case is the mosaic of cropping with machair grasslands in parts of the Western Isles of Scotland, where fallow survives as an integral part of the system.

Otherwise, low-intensity arable cropping supporting traditional weed species occurs only occasionally and at a very local level, for example on some organic farms or where particular practices are maintained by agri-environment schemes (AES).

Some small areas of arable land are managed for spring cereals with reduced pesticide use and weedy winter stubbles, within a landscape mosaic of thick hedges and patches of dense scrub and semi-improved grasslands. These areas are important for the population of certain bird species, for example circl bunting (*Emberiza circlus*) in south Devon and other more widespread buntings across the country, but as the Devon project shows (below) these landscapes are also of wider biodiversity value.

Intensively-managed farmland supporting particular species of conservation concern can be found at a local level in all zones, including the areas coloured white and grey on Fig 6. As in several other parts of Europe, the main species of this Type 3 HNV farmland are wintering birds, such as barnacle goose, white-fronted geese and whooper and Bewick's swans that use this land for feeding.



Figure 8. Some of the species supported by HNV farmland are overlooked by inventories that focus on higher-plant communities: anthills at Porthyrhyd, Carmarthenshire (R. Carmichael).

HNV farming in national policies in England and Wales

England

At the time when the 2007-13 Rural Development Programme for England (RDPE) was developed, there was considerable uncertainty about the definition and measurement of the HNV farming indicator. Chapter 3 of the RDPE includes a map of HNV farming, compiled using a national interpretation of Type 1 and Type 2 HNV.

The approach relied on mapping the occurrence of semi-natural habitats and of groups of species characteristic of high nature value farmed land onto a base map of utilisable agricultural land, using a geographic information system. The rationale behind this decision is set out in Chapter 12 of the Programme Document.

Careful examination of the map produced by this approach showed some counter-intuitive results, suggesting that at the very least the groups of species used to identify high nature value farming needed further refinement. The RDPE text stresses that this is work in progress and that it requires further development, through both national consultation and subsequent regional refinement, before an operationally useful map can be produced. The Devon project (see below) seems to confirm that the approach used for the RDPE is not a reliable reflection of HNV farmland reality on the ground, at least for the case-study areas.

The RDPE asserts that the condition of SSSIs and of farmland Priority Habitats gives an indication of the overall status of HNV farmland in England. In the absence of a fully developed baseline, the area of SSSIs in target condition is being used as an impact indicator. However, these assertions are questionable, as the Devon project illustrates – in some areas a large proportion of HNV farmland is not within SSSIs and is not identified on existing inventories of Priority Habitats, and so does not get any “special attention” from policy measures such as agri-environment. Monitoring prime sites and habitats is not the same as monitoring the wider spectrum of HNV farmland.

Wales

The Wales RDP 2007-13 makes very few references to HNV farmland, mentioning that the HNV indicator is undeveloped. In the absence of progress in developing HNV indicators, the Countryside Council for Wales (CCW) undertook a small “look-see” exercise, following a pattern followed in other countries. Semi-natural vegetation was taken as an indicator of Type 1 HNV and, completely separately, land cover diversity was taken as an indicator of Type 2 (overlooking the “managed at low-intensity” element of the definition). Some species data were also investigated. The approach is an interesting start, and it would be worth considering further whether the maps produced would make viable monitoring tools, or would possibly be more useful for targeting or for broad-scale evaluation of resource allocation by Government.

As a separate exercise, the Welsh Government (WG) commissioned a comprehensive monitoring and evaluation programme covering all impact indicators across all Axis 2 RDP schemes in January 2009, including that for HNV

farming. This evaluation will be available at the end of the current RDP in 2013.

It seems that WG sees the HNV indicator as something to be closely aligned to the targeting and monitoring of the Glastir AES. Aligning the HNV approach to agri-environment has advantages in principle, but because entry into the scheme is voluntary and targeted it carries with it the risk that the indicator may no longer serve its core purpose of identifying farmland of high biodiversity, monitoring its tendencies, and evaluating the effects on these tendencies of the RDP as a whole. The WG approach conflates two very different policy ideas – targeting measures, and monitoring tendencies on the ground.

Also, the WG has suggested an interpretation of HNV which would be “more representative of the collective Natural Resource”, rather than being limited to farmland biodiversity. This interpretation of HNV includes not only some measure of ecologically significant species and habitats but also extends to soils and water. It thus creates some confusion of the HNV farming concept.

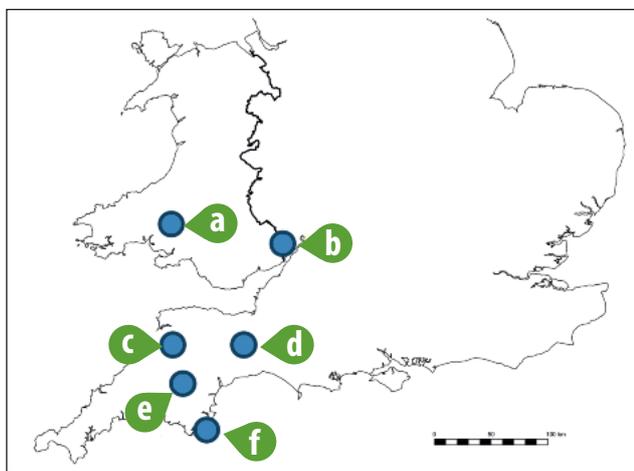


Figure 9. Barn owls hunt over rough, tussocky grasslands that may be of limited botanical interest. (C. Jones).

© Craig Jones

The project areas in England and Wales and their HNV farming characteristics

Three projects were developed, in areas where HNV farmland could be expected to have a significant presence, but where semi-natural vegetation generally would not be dominant in the landscape. The aim was to explore the challenges of HNV farmland identification and support in these “Type 2 situations”. The choice of areas was also driven by the interest of potential project partners. The approximate project locations are shown in Fig. 10. The project areas are described briefly below (for individual project reports please see <http://www.efncp.org/projects/united-kingdom/>).



- a East Carmarthenshire
- b Wye Valley
- c Blackdown Hills
- d Culm grasslands
- e Dartmoor
- f South Devon

Figure 10. Approximate locations of the HNV farming projects and case studies (note that there were 4 case studies within the Devon project, shown at c-f).

Devon

The Devon HNV farming project partners were EFNCP, Devon County Council, Blackdown Hills AONB, South Devon AONB, Devon Wildlife Trust (DWT) and Natural England (NE), with a wider consultation group including Royal Society for the Protection of Birds (RSPB), Dartmoor National Park Authority (DNPA), Farming and Wildlife Advisory Group (FWAG) and Butterfly Conservation (BC). Natural England (NE) undertook mapping work and related data analysis; Cumulus Consultants undertook farmer interviews and policy analysis. Input was also received from farmers (30 farm visits) and other stakeholders.

The project was built around four case studies:

Blackdown Hills AONB covering 37,000 ha on the border of Devon and Somerset. Predominantly a livestock farming area, with dairying and beef rearing, the area grows good grass but the predominance of steep valley slopes and the limited extent of deep productive soils mean that arable cropping is very restricted. Farm size is relatively small and there is a higher than average proportion of long-standing, small traditional family farms. The landscape of escarpments, plateaux and steep valleys contains a relatively high concentration of important wildlife habitat (both farmland and woodland). The distribution and character of this habitat is directly correlated with the limitations of the landscape for intensive farming, with the most biodiverse areas being associated with steeper slopes and wetter soils.

South Devon AONB covering 34,000 ha on the southern-most coast of Devon. Compared with the other case studies, this area has a wide range of farming types, including arable cropping, beef and sheep, dairying, and orchards. The most biodiverse farmland is associated with coastal plateaux and estuary valleys.

Areas of low-intensity spring cereals/winter stubbles in combination with pastures and hedges support nationally important populations of ciril bunting. In the summer the

natural food of cirl bunting consists of invertebrates (e.g. grasshoppers and crickets) to feed their chicks. In the winter they feed on small seeds from over-wintered stubbles, fallow land and the over-winter feeding of stock with grain or hay. Cirl buntings nest within dense cover such as that provided by thick hedgerows and scrub. Therefore the ideal farmland habitat for cirl bunting is a mixture of grass and arable fields, divided by thick hedgerows with pockets of dense scrub, a landscape matrix that is also valuable for many other species, including greater horseshoe bat, great green bush-cricket, hornet robberfly, small pearl-bordered fritillary and brown hare. So although the cirl bunting is the most emblematic species of the area, and has given rise to agri-environment measures that are largely responsible for maintaining the HNV farming pattern, this is not “single-species” HNV farmland.

Culm grasslands – two case-study areas covering a total of 41,000 ha in north Devon, where the Devon Wildlife Trust (DWT) Working Wetlands¹⁹ project is active – the Torridge and Tamar headwaters; and Knowstone and Witheridge. The open, rolling ridges of the Culm are separated by valleys with characteristic landscapes of small fields with hedges, intersected by streams. The heavy clayey soils and climate combine on the Culm to produce good conditions for growing grass and make arable cropping difficult. These wet soils have long been the focus of improvement effort and lend themselves well to livestock production, the Devon Red (or Ruby Red) being the beef cattle breed native to the area. The better land tends to be occupied by dairy cattle, whilst beef and sheep production are found on the heavier more difficult land to farm.

The term Culm grassland is used to describe the agriculturally unimproved wet pastures of the region. Culm grassland encompasses a broad range of habitats including damp neutral meadow, fen meadow, tall-herb fen, wet flush, swamp, species-rich rush pasture and wet heath, and includes the purple moor-grass and rush pasture priority habitat of the UK's Biodiversity Action Plan (also known as rhos pastures). In fact it is mosaics of these different grassland types that are characteristic and unique. Culm grassland is present in many differing landscapes from networks of densely hedged small field systems, to large



Figure 11. These fields (left and right) in South Devon have been a County Wildlife Site since 1992, but fell out of livestock use several years ago and are in non-farming private ownership (and not in AES). The owners maintain them by occasional mowing, but the fields have been threatened recently with building development.

unenclosed moors, and is also commonly associated with scrub and wet woodland. Farmland in the Culm supports significant invertebrate interest with nationally important populations of butterflies including the marsh fritillary, small pearl-bordered fritillary, wood white and brown hairstreak.

Dartmoor – a study area of 7,903 ha (8.3% of the total National Park area), consisting of the parishes of Chagford, Throwleigh, Gidleigh and North Bovey, chosen to reflect a range of farmland and habitats including the high moor, the transitional edge between moorland and lowland and lowland valleys adjacent to the moor.

There are three main types of farmland on Dartmoor: moorland, “newtakes” and in-bye land. The newtakes are mainly enclosed areas of moorland, adjacent to the commons belonging to individual farms. Some of these have been agriculturally improved but remain marginal in terms of production. The in-bye land comprises a patchwork of improved and enclosed fields, suitable for forage production or grazing lambing sheep or cattle with calves. Around the edges of Dartmoor the farmland is typically enclosed. But the majority of Dartmoor is

¹⁹ <http://www.devonwildlifetrust.org/working-wetlands/>

moorland – exposed rough grassland used for extensive grazing of cattle, sheep and ponies (only sheep and ponies survive harsh winters without additional feeding). Some 75% of the open moorland is divided into commons, with associated rights.

Many farms consist of a “home farm” and common rights and/or newtake on moorland. Livestock farming is the predominant farming activity. The home farm is used for calving, lambing and forage production. The moorland is used for summer grazing of cattle, sheep and ponies.

HNV farmland is widespread throughout the National Park. Large open expanses of semi-natural blanket bog and upland heathland are intersected by valley mires with springs and flushes feeding rivers leading off the higher slopes. The high moor is connected with the lowland farmland by both unimproved acid grasslands and enclosed semi-improved pastoral farmland. Within the lowland areas of the National Park, HNV farmland is typically limited to occasional unimproved hay meadows and *rhos* pastures in the river valleys.

Several of the valleys in the study area hold *rhos* pastures with strong populations of marsh fritillary, small pearl-bordered fritillary, narrow-bordered bee hawkmoth and willow tit. These sites are not notified as SSSIs as they were

only surveyed after the notification of new sites ceased in the early nineties. A number of unimproved dry grasslands are found, especially in the area to the west of Chagford and include several fields managed as hay-meadows.

East Carmarthenshire

The project was carried out by a team of local consultants, co-ordinated by EFNCP with the financial support of CCW. The eastern portion of Carmarthenshire was selected as a suitable case study area, combining a range of altitudes, farm types, land cover, geologies and socio-economic contexts. The project focused on the enclosed land, on the assumption that the HNV character of large areas of upland semi-natural vegetation was not in question.

Within this focus area of approximately 120,000 hectares, eight case studies were used for a detailed assessment of HNV farmland. These were chosen to highlight the variety of agricultural landscapes and farming practices within the study area. Not surprisingly the pattern and distribution of HNV farmland within these landscapes is also very varied. In very general terms the amount and distribution of HNV farmland within East Carmarthenshire appears to be inversely proportional to the degree and extent of agricultural intensification.



The intersection between open moorland (1) habitats and unimproved, semi-improved and improved farmland. Lower moor slopes with an unenclosed patchwork of bracken, gorse and unimproved acid grassland (2). Enclosures of semi-improved pasture bounded by stone walls (3) on the higher ground, and large hedgerows enclose more productive pasture at lower altitudes (4).



The intricate mosaic of lowland farmland around Dartmoor is distinguished by thick, well-treed hedgerows around small, irregular fields (1), dissected by steep-sided wooded valleys (2). Much of the farmland is improved pasture, with occasional arable. Isolated sites of unimproved *rhos* pastures (3) and hay meadows can be found in the valley bottoms where woodland is absent.

Figure 12. Contrasting upland and lowland landscapes in the Dartmoor study area

The study area is overwhelmingly pastoral, managed with varying levels of intensity. The field pattern is varied and includes irregular medieval fields, medieval strip fields and 19th century rectilinear Parliamentary Enclosures. There are several areas of unenclosed common land, Mynydd Mallaen in the north being one of the largest. The area is relatively well wooded with an estimated 15% cover which is made up equally of small farm woodlands distributed fairly evenly across the area, and larger forestry plantations, most of which are located in the north of the region. Hedgerows and trees are very much a feature of this area and also contribute to its well wooded appearance, as illustrated in Fig.13.

The farming systems that exist within the area are varied. They range from relatively intensive dairy units in the Tywi Valley milking over 300 cows, and intensively run sheep farms in the hills, neither of which support any significant HNV farmland; to small extensively managed herds of rare breed beef cattle, which can sustain a variety of functioning farmland ecosystems, the grazing regime being very much in line with conservation grazing practice. The majority of farms are managed in a way that is somewhere between the two. Land that can be used for silage usually has been improved while small fields and inaccessible, poorly drained and steep land can often be considered HNV farmland, if the stocking densities are appropriate.

Farming systems have played a very important role in shaping today's landscape, and perhaps have contributed

more to the diversity of the landscapes in the area than any other factor. Immediately next to an intensively managed farm with flailed hedges, few if any hedgerow trees, where almost all the land is improved, there can be a farm with much taller and wider hedges, significant numbers of hedgerow trees, some poorly drained areas and semi or unimproved grassland on steeper slopes. The physical features of the farms might be essentially similar, the differences being due to how the land has been managed for agriculture over the years, and the farming systems that have been in operation.

Grasslands on farms in the project area vary enormously, not only in terms of their species composition, but how they are managed – how much and what type of fertiliser is applied; whether they are limed; cut for silage, or for hay; grazed in winter or topped. Largely as a result of these management variables, grasslands can be species-rich, or support particular species of biodiversity interest such as the food plant of the marsh fritillary butterfly – devil's-bit scabious. They can support groups of species that are not widespread, such as waxcap fungi. They can provide a structure that provides habitat for other species – e.g. tussocky marshy grasslands can support amphibians on which otters feed; drier tussocky grasslands that support a high density of small mammals that are important for barn owl. In a mosaic of habitats, grasslands have a role that is more complex than just their species diversity; their structure is also crucially important.



Figure 13. Typical gradation in agricultural improvement with gradient, Carmarthenshire (R. Carmichael)

Wye Valley

The Wye Valley HNV farming project was carried out jointly by EFNCP and Wye Valley AONB, with input from local ecologists (George Peterken and Stephanie Tyler) and stakeholders, and from Cumulus Consultants and Border Ecology.

The Wye Valley AONB covers an area of 32,600 ha, and includes parts of the counties of Hereford and Gloucester (England), and Monmouth (Wales). The river Wye forms the border between England and Wales in the lower reaches of its course, cutting a path through a low plateau. On both sides of the river historical and geographical factors have combined to allow the survival of significant areas of species-rich grasslands, largely in bocage landscapes of very small, hedged fields.

The area is interesting for a number of reasons. The similarity of the areas on both sides of the river makes it an ideal place to compare any difference in approach between Natural England and Defra on the east bank and the Countryside Council for Wales and Welsh Government on the west.

In addition, both sides of the river have generated their own community-led grasslands projects: the Parish Grasslands Initiative in the Hudnalls (lower Wye Valley, Gloucestershire) and the Monmouthshire Meadows project (Wales), raising interesting questions of how to “mainstream” such activity into major policies, especially Rural Development Programmes. The areas covered by these two initiatives were the main focus of the HNV farming project. In the northern part of the AONB the landscape tends to be more gentle with broad meanders and more open farmland over the Herefordshire lowlands.

The Hudnalls and its immediate surroundings in the parishes of St Briavels and Hewelsfield was historically a large wooded common running up from the Wye floodplain onto the Dean plateau. It was settled by squatters around 1800, who divided most of the land into smallholdings with small fields (as illustrated in Fig. 14), bounded by walls and hedges, leaving the wooded common only on the steep slopes to the north and west. The land is still used variously as smallholdings, horse-paddocks and large gardens.

The land is inherently acid and infertile, but two centuries of use have “improved” the original wooded heathland into grassland – mostly MG5 in the National Vegetation Classification (NVC). Many fields were cultivated in the past, but few are ploughed now. The whole area is pervaded by a network of hedged lanes. Boundary trees are dense and large enough to give the appearance of woodland from a distance. Some of the boundary trees are surviving veterans from the pre-1800 wooded common.

When a survey was carried out in 2002, the great majority of the land that was not occupied by woodland or houses and gardens was grassland, and a majority of that was semi-natural. Most of the semi-natural grassland was meadow, and the pasture and meadow aftermath were grazed mainly by sheep and horses, or by cattle in a few instances. The survey has not been repeated, but the area of semi-natural grassland is known to have declined a little, mainly because some marginal fields have scrubbed over. A couple of fields have been ploughed and used as arable.

No sharp boundary can be drawn between semi-natural and improved grassland in the area. Both are unsown swards dominated by native grasses containing an admixture of native herbs. The fields that were recorded as improved included those that were known to have been ploughed or substantially fertilised fairly recently, and exceptionally species-poor fields that had been sheep-grazed at all seasons for many years. However, many of the semi-natural grasslands had also been cultivated until after World War II, and most of the improved grassland would probably revert to semi-natural (i.e., acquire more herbs) within a decade if they were no longer fertilised or grazed in early summer. No fields would qualify as SSSI grassland, but a few have enough local species to be some form of “local wildlife site”.

The Welsh part of the AONB includes significant areas of HNV farmland, comprising some dry and wet grasslands, heathland, mires, orchards, hedgerows, scrub and copses. Of particular value are the species-rich mainly neutral grasslands. Many small pockets of farmland still support species-rich grassland, both hay meadows and grazing



Figure 14. Aerial view of Hudnalls small-scale field pattern. Survey data shows the biggest contiguous block of semi-natural grassland to be in the larger fields just above the centre of the photograph (Google earth)

pastures, particularly where the fields are of small size and where there are access difficulties, for example on steep sides of valleys. Many of these species-rich grassland pockets are less than half an acre in size and are now attached to houses and not farmed as such.

Orchards in the AONB often have unimproved MG5 semi-natural grassland below the trees and even where the grassland is of limited value, the orchard itself is an important habitat. The fruit trees support lichens and mistletoe and many rare insects are associated with old fruit trees. Holes in trees are used by roosting bats and breeding birds such as tits, redstart and woodpeckers.

In NVC terms, MG5 and U4 grassland is of high nature conservation value as it supports a wide range of plant species, many butterflies, beetles, bees, grasshoppers and other invertebrates and provides a rich food source for small mammals and seed-eating birds such as goldfinches or species such as green woodpecker which feeds largely on yellow meadow ants that thrive in the large mounds in some pastures.

Some farmland with MG6 or MG7 still has small fields with, for the main part, good quality, species-rich hedgerows or

old wall boundaries, and often there are patches of scrub, copses and/or ponds. Most hedgerows in the AONB are quite species-rich, consisting of hazel, hawthorn, blackthorn, maple, often holly, spindle and dogwood. Often there are mature trees within the hedges. Many bats such as lesser horseshoe bat, an important species in the AONB, need hedges or tree lines along which to move from one site to another. Dry-stone walls are an important landscape feature of the AONB and they too have high conservation value supporting many higher plants as well as mosses, liverworts and lichens. Walls are used by small mammals for moving from one area to another, for shelter or hunting. Reptiles such as slow worms and amphibians such as common toads also find refuge in walls.

Apart from the large extent of woodland and managed forest, most of the remainder of the Wye Valley AONB is farmland with arable fields or agriculturally improved fields (NVC type MG6 and 7) of rather low conservation value. However, some MG6 grassland has developed some interest, for example a range of grasses and even spotted orchids *Dactylorhiza fuchsii* appearing in the sward. Unfortunately, all too often when it reaches this stage, it is ploughed and reseeded with a rye-grass ley.

What the projects did

The overall aim of the projects was to address the following questions:

What is HNV farmland in the local area?

- What types of farmland are considered the most valuable from a wildlife perspective, and therefore can be considered HNV farmland?
- Do existing databases and inventories show the full extent and location of these types of farmland? If not then what types of farmland are missing?
- What are the potential ways (now or in the future) in which the extent and location of this HNV farmland can be identified, through existing or future data sets such as UK Land Cover Map²⁰, IACS²¹, etc.?
- Can a “baseline” area of HNV farmland be identified in the project areas?

What type of farming uses the HNV farmland and how are these farming types evolving?

- Can we characterise the different farming systems or farm types that currently use HNV farmland in the project areas (e.g. in terms of production sector, production systems, management practices, farm size, ownership, etc.)?
- How are these farming systems or types likely to evolve in future e.g. intensification, abandonment, change of land use?
- What are main factors influential in maintaining HNV farmland, especially policy and socio-economic trends, but also e.g. hobby farmers, tourism, personal motivation of certain farmers?

How can HNV farmland be maintained?

- What are the key issues that need to be addressed on the ground, in order for HNV farmland to be maintained? This includes social and economic questions, but also practical issues such as availability of

livestock to graze small, awkward fields, and how such activities can be organised and continued.

- To what extent does the current package of policy measures ensure the maintenance of HNV farmland e.g. Pillars 1 and 2 of CAP, RDPs, BAP, etc.? If not, what is missing, what needs to be improved?

The emphasis of the local projects varied, depending on the focus of the partners involved.

The Carmarthenshire project focused primarily on the identification of HNV farmland using existing data sets, including innovative remote sensing tools that are more advanced in Wales than in England.

The Devon project focused on analysis of the situation of HNV farming, including trends affecting HNV farming according to farmer and stakeholder interviews, and the policy response especially through RDPE.

The Wye Valley project focused on practical approaches to maintaining HNV farmland in landscapes of small, amateur landholdings and on the development of a project model for local action.

²⁰ LCM2000 and LCM2007 produced by Centre for Ecology and Hydrology as part of the Countryside Survey

²¹ Integrated Administration and Control System through which CAP payments are managed

How can HNV farming be identified using existing or proposed data sets?

The projects considered different approaches to identifying HNV farmland, based on experience at national and EU levels and on the guidance produced by the European Evaluation Network for Rural Development Help Desk. There are three broad approaches, which can be summarised as:

- The land-cover approach - identifying types and patterns of land cover that can be expected to support high nature values.
- The habitats and species approach - mapping the location or concentrations of habitats and/or species of conservation concern.
- The farming systems approach - identifying and mapping farm types that have characteristics normally associated with high nature values, such as low livestock densities.

These approaches were explored in the Carmarthenshire and Devon projects. Important differences were found in the data sets of the two countries – in Wales, it seems that quite effective identification of HNV farmland can be undertaken with available data sets; in England this was not the case at the time of the project, but aerial photo interpretation was found to provide a practical alternative at least at the local level.

Species data as currently available seem not to give enough certainty to make an initial selection of HNV farmland. However, it may be useful as a follow-up to other approaches (aerial photography, satellite imagery etc). As a final step in HNV farmland identification, detailed species distribution data (where available) may allow the identification of farmland that does not have the semi-natural content or land cover patterns normally associated with HNV, but that nevertheless supports certain species of conservation concern – Type 3 HNV farmland.

Identifying HNV farmland in Devon

In Devon, the project partners found that reliable HNV farmland identification in the case study areas was not possible using existing databases. There are various reasons for this:

- Land Cover Map 2000 (LCM2000) is not produced at sufficiently high resolution to distinguish semi-natural fields from more intensively farmed grassland; LCM2007 is much higher resolution but was not available at the time of the project.
- Habitat inventories include only BAP priority habitats. There was a consensus among the project partners that such inventories do not represent the total extent of semi-natural farmland in its wider sense, and that the data are often quite old.
- Species data are not sufficiently consistent either geographically or across taxa; the spatial resolution is also too crude in most cases and often records only presence/absence.
- Data on farming characteristics are not readily available at a sufficient spatial resolution and would need to be tested against an initial interpretation of which areas of farmland can be considered HNV on ecological grounds.

The Devon project therefore turned to the expert interpretation of aerial photos to see if this would allow the identification of a wider spectrum of HNV farmland. The answer seems to be that it can, as the unimproved and semi-improved farmland has a distinct “rough” appearance on the photos. Local knowledge confirmed that the areas apparent from this visual interpretation of the photos correspond with farmland areas considered of most nature value, suggesting that a computerised expert system could be taught to carry out the same task in future. It was noted also that the semi-improved habitats linked many of the BAP priority habitat areas and/or were located in the same landscape units (see Fig.15)

DWT has applied a similar method for biodiversity surveys in Culm parishes and produced apparently sound results.



Figure 15. Example from Blackdown Hills – BAP priority habitats (right – shaded grey/green) sitting within a wider matrix of broadly semi-natural farmland (left)

BOX 2

Approach to mapping HNV farmland under the Devon project

The first stage in identifying HNV farmland was to digitise those OS Mastermap polygons which are co-located with Sites of Special Scientific Interest (SSSIs) and County Wildlife Sites (CWS).

The next stage was to work systematically across the area and digitise every instance of what appeared to be farmed semi-natural habitats (scrub, rough grazing, ponds etc.).

Another set of criteria for selection into the HNV layer were agglomerations of small fields (high density of hedgerows), areas of orchard, small farm woodlands (broadleaved or mixed only – pure conifer plantation was excluded) in some cases with larger arable or grassland fields as part of the matrix.

Finally, semi-natural woodlands were marked as a separate layer of High Nature Value forestry, as this is also included in the EU policy context.

Difficulties with this approach:

Semi/unimproved grasslands with even swards that are not identified as SSSI or CWS are almost impossible to pick out from aerial photography (whereas rough/scrubby grassland is quite obvious).

Aerial photos from different times of same year can give very different impressions of “semi-naturalness”.

In this case the aerial photography interpretation tended to underestimate the area of farmland of biodiversity interest – subsequent additions were made on the basis of field surveys. Interestingly, the same tendency to slightly underestimate the HNV area emerged from the remote sensing work in east Carmarthenshire (see below)

In the case of South Devon mixed farming landscapes, the HNV areas were identified on the basis of County Wildlife Sites (CWS) designated for their populations of ciril buntings.

The Devon project partners decided to produce indicative maps of HNV farmland for the case study areas on the basis of visual interpretation of aerial photos. These indicative maps aim to capture a contiguous area of HNV farmland for each of the Devon case study areas. The project was thus successful in establishing for these areas a “baseline” of HNV farmland, as intended under the EU indicator for monitoring rural development programmes. The proportion of farmland identified as HNV ranged from 10.5% in the Blackdown Hills to 47% in the Dartmoor case study area (4 selected parishes). See Table 1.

The HNV farmland maps produced under the Devon project were checked against maps produced under a national approach trialled by Natural England (NE) at the time the current RDPE (2007-13) was being prepared. The results of the comparison suggest that the approach trialled at national level does not produce robust results at the local level. In the case-study areas, the HNV farmland identified through the NE national approach is only a very limited part of the area identified by this project, and in some cases does not coincide well with farmland of biodiversity value. See Fig. 16 for an example.

	Total extent of study area	HNV farmland as % of study area	HNV woodland as % of study area	HNV land as % of study area
Blackdown Hills	36,860 ha	10.5	5.7	16.2
Culm	40,628 ha	10.5	5.5	21
South Devon	33,700 ha	19.5	5.5	25
Dartmoor	7,903 ha	47	2	49

Table 1: Extent of HNV farmland and woodland identified in the case-study areas

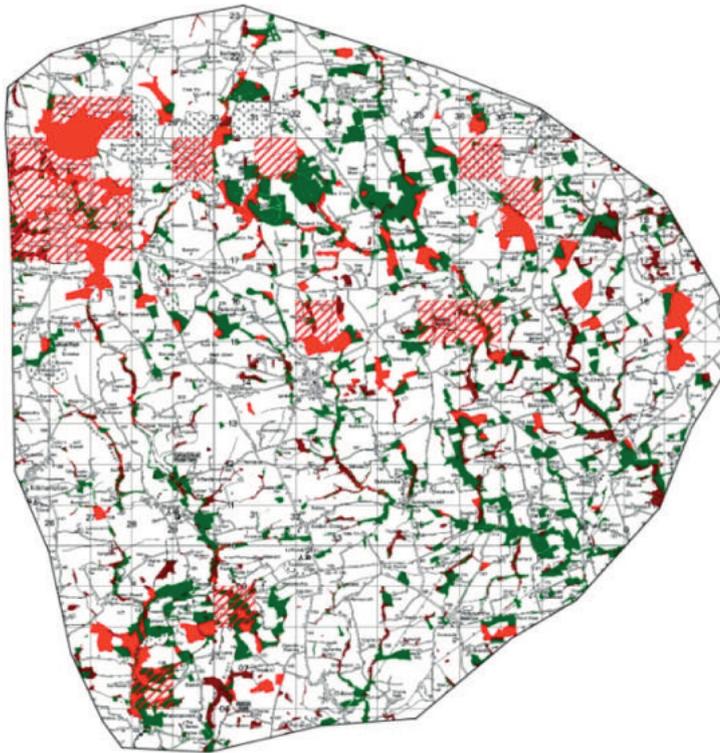


Figure 16. NE draft map of HNV farmland overlaid with maps produced under the Devon project. From the Culm case study (Greater Bursdon Tubney).

High Nature Value Farmland and Woodland
Greater Bursdon Tubney Area

HNVF Identified by Natural England

- Type 1 HNVF
- Type 2 HNVF

Project HNVF Areas

- Farmland
- Woodland

Identifying HNV farmland in east Carmarthenshire

The Carmarthenshire project investigated the usefulness for identifying HNV farmland of a range of data sets:

- Landmap
- Wildlife Sites – Criteria for selection
- Biological Records – West Wales Biodiversity Information Centre, Whitland
- CCW’s Phase 1 Habitat Survey c.1994
- CCW’s Habitat Network Mapping
- Aerial Photos, 2000, 2006 and 2009 (Welsh Government)
- CCW Habitat Inventory Map of Wales (HIW), made available in draft form for part of the study area (i.e. pre-ground truthing within the study area) by the contractor, Environment Systems

In most cases the findings were similar to those in the Devon project with equivalent data sets, in other words the various habitats and species inventories were generally not sufficiently exhaustive, up-to-date or detailed for accurate identification or monitoring of HNV farmland at the local level. The new Habitat Inventory of Wales (HIW) was one important exception, as explained below.

In the case of species data, there are useful records of some species indicative of HNV farmland and reliant on farmland ecosystems for some of the case study areas, e.g. barn owl, brown hairstreak and dormouse. However, records do not represent a comprehensive data set that can be used across the study area. Other sources of biological records, such as the British Trust for Ornithology Breeding Birds Survey, were also investigated, but proved to be at too coarse a resolution to be useful for the identification of HNV farmland.

However, the HIW was found to be potentially of sufficient accuracy for both identifying and monitoring HNV farmland, which is a very significant finding. The HIW is a new mapping project developed by Environment Systems for CCW. It aims to produce detailed habitat maps of Wales through the use of aerial photography and satellite remote sensing data 'to help monitor landscape-scale biodiversity, habitat connectivity, ecosystem function and the green infrastructure of Wales. A key principle is to maintain continuity with traditional field-based survey methods while allowing future use of the enormous power of satellite-based measurements of productivity, habitat structure, soil moisture, biomass and seasonal patterns in phenology'.²²

Within the East Carmarthenshire study the usefulness of the HIW in identifying HNV farmland was assessed by ground-truthing within the eight sample areas, all except one of which consisted of at least two, usually adjacent, 1km squares. Through site visits, fields were assessed as to whether or not they might qualify as HNV, and the conclusions were compared with the HIW classification, and with aerial photos taken in summer 2009. Fields which could not be surveyed were marked as such. All the "non-improved" habitats recognised by the HIW were taken to qualify as HNV; the only habitat where there may be some doubt is "poor improved grassland".

While some shortcomings were identified, HIW was able to identify at least 84% of the semi-natural farmed vegetation within six of these sample areas. A specific problem occurs with hedgerows and woodland edges whose width can be over- or under-estimated, due to the shadow cast or lost (depending on the time of day the aerial photograph was taken). The extent of adjacent grassland is then over- or more frequently, under-estimated. Some small fields have been mostly or entirely mapped as woodland.

No instances were identified where HIW identified an area as being semi-natural when it did not appear so on the ground or on aerial photos, which is a very significant positive attribute of HIW. In some cases polygons identified as "improved grassland" on HIW were found through field visits to be semi-improved and probably HNV. See Figs. 17 and 18 for an example of this (Carmel case study).

Revised editions of HIW will be available in 2012 and the maps will continue to be improved as more data become available. With the revisions and improvements that are expected, HIW could provide a key tool for identifying HNV farmland in East Carmarthenshire, and across Wales, in association with aerial photographs. Similarly the two potentially could be used for monitoring the extent of HNV farmland.

While accurate mapping of plant communities within individual fields will continue to rely on field survey, HIW will provide useful information as to where HNV is likely to occur and where to target further field survey. Payment schemes that rely on HIW for identifying habitats should also include ground-truthing of an agreed sample of sites, firstly to ensure accuracy, secondly to continue to improve the accuracy of the HIW, and thirdly to monitor changes in HNV farmland at the field level.

The Carmarthenshire project also explored the possibilities for integrating HNV farmland information with the Land Parcel Information System (LPIS) and Integrated Administration and Control System (IACS) through which all CAP payments are administered. This is a very desirable step, which has been undertaken already by some Member States (e.g. Bulgaria and Slovakia).

The LPIS data held in CCW's Geographical Information System was interrogated to enable an analysis of the information held within it to be carried out. The WG's GIS team was consulted to confirm what, if any, additional farm practice data was linked into their LPIS. The WG's Single Application Form was used to ascertain what information captured in IACS could be useful to link to the LPIS Farm Boundary and Field Information layers in GIS in order better to identify HNV farmland.

Consideration was given as to whether it would be possible to develop the LPIS/IACS databases further to incorporate HNV variables. It was found that the LPIS used by CCW and WG provides information on:

- Farm boundaries
- Size of parcel
- Less Favoured Areas (LFA)/non-LFA

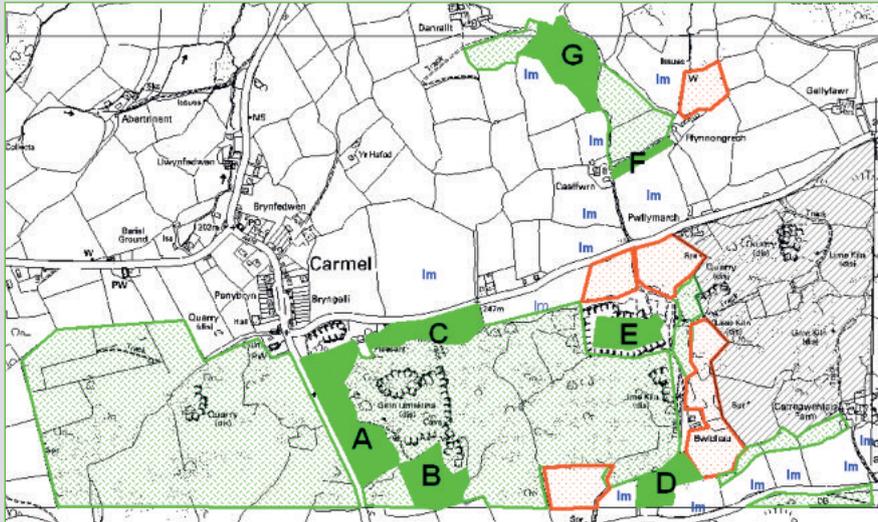


Figure 17. Carmel case study area

Left

- ground-truthed polygons referred to in table below
- clearly HNV polygons
- grasslands in need of further survey to establish whether or not they qualify as HNV
- area not visited during survey
- improved grassland

Below: Comparison between HIW and field visit analysis for solid green polygons.

	Area	Identification in HIW	HNV?	Field survey Feb 2011 and 2009 aerial photos	HNV?
A	2.3	improved	n	semi-improved	y
B	1.2	improved	n	semi-improved	y
C	1.0	improved	n	semi-improved	y
D	0.7	improved	n	improved with broad semi-improved edge	n/y
E	0.8	improved with few pixels semi-improved	n	quarry floor covered in moss	y
F	0.2	bare ground	n	semi-improved	y
G	1.6	improved / poor improved	n	semi-improved	y
H	7.8	improved / poor improved	0.0		7.1-7.8

- Agri-environment scheme participation (Organic Farm Scheme, Tir Cynnal and Tir Gofal), including Tir Gofal habitat codes

The current CCW/WG LPIS does not provide information on farming characteristics/management practices such as:

- Type of farm and farming system
- Single Payment Scheme (SPS) land use/crop codes
- Livestock type, livestock numbers or livestock units
- Common grazing rights/additional forage land

The farming practices data that are not currently available in LPIS are captured to some extent on the Single Application Form (SAF). It would be possible to attach additional data deemed useful as a potential HNV indicator into the GIS LPIS farm boundary and field information layers, linked via individual customer reference numbers (CRN).



Figure 18. Aerial image of Carmel area showing agri-environment uptake, (Tir Cynnal in red; Tir Gofal in blue) (Photo: Google earth)

²² www.gwylio.co.uk

Current land use codes do not distinguish semi-natural farmland, but have potential to do so. For example, the permanent grassland code GR2 is used for unimproved, semi-improved or improved grassland that has not been ploughed or reseeded for over five years. It would be useful to develop the SAF to include additional codes to separate out semi-natural forage at the parcel level i.e. distinguishing it from grassland that has been heavily fertilized. This could be quite simple, for example, all landowners claiming SPS would declare GR3 semi-improved/unimproved pasture and GR4 semi-improved /unimproved hay meadow on their SAF, which could be linked to LPIS to indicate HNV farmland. For land to be entered under the semi-improved/unimproved land use codes it could be specified that the parcels would not have been ploughed, reseeded or had inorganic fertilizers or biocides applied for the previous five years, removing the need for the landowner to be able to identify specific grassland habitats.

Such additional land use codes for semi-natural habitats may also help when cross checking land declared on the SAF with agri-environment schemes, with cross-compliance and with Environmental Impact Assessments. Further refinement of the land use codes and their definitions would be an important consideration, to enable data to be captured in LPIS/IACS that reflected the appropriate management of semi-natural farmland.

Farm features that make a significant contribution to HNV are not included in LPIS/IACS at present. This will need to be addressed in order to implement the European Commission's proposed "greening" mechanism for the CAP, under which farms claiming support will be required to maintain a minimum of "ecological focus area" on the farm. Simple questions could be asked on the SAF to include these features, for example, the length of hedgerows on the holding managed traditionally each year.

What are the challenges faced by HNV farmland in the project areas?

The challenges faced by HNV farmland were assessed through a combination of literature review, data analysis and interviews with farmers and other stakeholders. The projects reveal some quite complex pictures, but also some very clear common threads across the project areas.

HNV farmland in all of the project areas is almost exclusively on lower-grade agricultural land, typically land which has limited production potential due to factors such as steep slopes, soils with impeded drainage, shallow stony soils, and sometimes very small field size. The physical disadvantages of this land for farming are very real, are a major reason for much of it remaining in a largely "unimproved" state for production, and for it being under threat of abandonment.

Given that unimproved and semi-improved grassland are the core of HNV farmland, the relevant farming types are by definition predominantly livestock or mixed farming operating at low intensity. Beef cattle and/or sheep are likely to have a major presence, although not to the exclusion of grazing by other livestock (dairy cattle, horses, ponies). An exception is South Devon, where arable cropping of spring cereals with associated winter stubbles is an important part of the HNV farmland mosaic.

The studies found HNV farmland to be present in a spectrum of farming situations, from very small amateur holdings with a high proportion of HNV land, through to larger commercial holdings normally with only a small part comprising HNV land. On some farms the main production activity is based on the HNV farmland, in which case beef and/or sheep are usually the main production system. At the other extreme were cases in Devon of large dairy holdings with most land under intensive use and a small patch of HNV farmland that may be grazed with the rest of the land, or may be fenced off and in a process of abandonment.

Farm business incomes in the project areas tend to be highly dependent on the CAP single farm payment (Single

Sources of income														
Agriculture		%	Agri-environment payments		%	Diversification		%	Single Payment Scheme		%	Farm Business Income		%
Cereal	-£430	-1%	£7,596	14%	£13,256	24%	£34,871	63%	£55,294	100%				
Dairy	£52,005	68%	£2,630	3%	£400	1%	£21,382	28%	£76,417	100%				
Cattle and Sheep (Lowland)	£1,832	-10%	£3,174	18%	£3,502	20%	£12,823	73%	£17,668	100%				
Cattle and Sheep (LFA)	-£2,387	-11%	£7,377	33%	£1,063	5%	£16,548	73%	£22,601	100%				
Mixed	-£3,186	-12%	£4,806	19%	£2,129	8%	£22,201	86%	£25,950	100%				
All Farms	£8,146	21%	£4,953	13%	£5,364	14%	£20,696	53%	£39,082	100%				

Table 2: Overview of farm business incomes in south-west England

Source: Farm Business Survey 2008. Adapted from Lobley et al (2009) by Cumulus Consultants (2011).

Payment Scheme – SPS). Figures from south-west England show this dependence to be considerably greater than average in the case of farms raising beef cattle and/or sheep, on which a large proportion of HNV farmland depends for its maintenance. These farms also have far lower farm business incomes, on average, than cereal and dairy farms. Beef and sheep holdings, and especially LFA farms, also tend to depend on agri-environment payments for a significant part of their income. See table 2.

In fact for many farms, agri-environment schemes (AES) provide an important part of the economic activity on HNV farmland, rewarding low-intensity and/or conservation management on grassland. In the case of South Devon, the system of spring cereals with arable stubbles and other management central to the value of farmland for curlew buntings are maintained almost exclusively as a result of AES. On the other hand, there are examples of HNV farmland simply being maintained as rough grazing without AES support.

In Carmarthenshire, concerns were expressed about the pressure to intensify, with high fixed costs, in order to compete in a global market, particularly in the dairy sector. Further rationalisation in the dairy sector was also predicted in Devon, including a rationalisation of land use with potential threats to remaining patches of HNV farmland.

Low incomes within extensive systems lead to lack of succession within family farms, with children from hill and upland farms tending to work elsewhere or train in other fields. Ageing of the farming population is leading to the potential loss of knowledge of how to manage extensive systems.

There is also increased pressure to adapt, to deepen and broaden the farming system in order to stay viable e.g. organic farming, shortening links between production and consumption by selling at local farmers markets or to organic box schemes, agri-tourism; environmental and landscape management through participation in agri-environmental schemes; and diversification – fruit and vegetable production.

In the Herefordshire area of the Wye Valley AONB, the management of semi-improved grassland under an extensive pastoral system is in competition with the demand for land for high-value crops (potatoes, soft fruit, and asparagus). Farmers see the soils as “too good to be growing pasture”, although some farms include a seed ley in the rotation to increase organic matter.

HNV farmland is seen by many commercial farmers as secondary/peripheral to their farming enterprise. However, there are also many instances where it is valued, either due



Figure 19. Species-rich neutral grassland in Monmouthshire, Wye Valley.

to personal interest/motivation, to the economic benefits available from higher-level agri-environment schemes, and in certain cases where the farm business is using it as the basis for a specific enterprise such as traditional beef breeds plus value-added in marketing its produce (meat box schemes, on-farm tourism). Personal motivation was a strong factor for the maintenance of the HNV farming in some of the farm interviews; "Managing land of high nature value is a life choice not a business choice. If all you're interested in is maximum profit, you cannot give the natural environment the time, energy and input it needs."

Very small farms and amateur holdings are more likely to be dominated by HNV farmland (although there are also plenty that are not), and such holdings are an important consideration for policy. Often, semi-natural grassland has survived precisely because it is outwith commercial farming, but policy measures designed to sustain such grassland are inappropriate because they are directed primarily at farmers. Amateur landowners may have limited knowledge of land management and farming, and often do not have access to livestock for grazing.

Keeping horses is a common motivation for small-scale land ownership. Negative biodiversity and landscape impacts of grazing with horses are widespread - often grassland is reseeded, overgrazed, weedy and poached. On Mynydd Mawr (Carmarthenshire) some landowners run part-time businesses or leisure interests such as Welsh Cob breeding, harness-racing or livery stables, and so do not feel they are able to reduce their stock numbers. Many

owners consider their land as an extension of their gardens, keeping it "neat and tidy" by mowing and topping the pastures, flailing hedges and clearing scrub, often at inappropriate times of year. But this is not inevitable; grassland grazed by horses can be well managed for conservation.

There is an on-going tendency for HNV farmland to become separated from commercial farming holdings, often through a process of selling off small farms or parts of farms to small-scale amateur landowners. Very small holdings are increasing rapidly in number. Larger holdings are also increasing. The middle-size family farm is declining. In some places, large expanses of HNV farmland are owned by big estates, such as Duchy of Cornwall and National Trust on Dartmoor.

An on-going decline of HNV farmland has been observed in several of the case-study areas, in the form of intensification in some instances, and simplification leading to gradual abandonment more generally. Studies of the condition of County Wildlife Sites (CWS) in Devon found that approximately 50% of grassland/heathland sites were not in favourable conservation management. Abandonment, neglect and under-management were more usual than over-intensive use.

Farmland in these sites tends to be on smaller, wetter, steeper fields with high management costs. Availability of suitable stock, and willingness to have stock on land with higher animal health risks and costs, seems to be an issue in some areas, and may become an increasing issue as stock numbers decline and HNV farmland increasingly comes into the ownership of non-farming landowners (see above). There has been a reduction in the numbers of hardy breeds of cattle that are well suited to managing rough grassland/heathland sites.

Restrictions on stock movements are an issue, and become more of an issue as the number of small holdings increases. TB testing is also a disincentive. Ponies and sheep movements are much less restricted (e.g. no TB testing) than cattle.

In the Wye Valley (Monmouthshire), many amateur landowners with HNV grassland have no agricultural

Dartmoor – trends affecting HNV farmland

The Dartmoor study area differed from the other Devon cases in having large areas under moorland and common grazings, and designated as SSSI/SAC and LFA.

Some 80% of farmland is on LFA grazing livestock farms, but “other” holdings cover a significant 15% – these are holdings that do not fit into the main agricultural categories of the census or are of limited economic importance, often coinciding with holdings of <5ha²³. Land is being polarised into very small and very large holdings: in 2000-2008 there was a 78% increase in the number and extent of “other” holdings, while farms of >100ha increased by 63% in number and 170% by area.

Livestock numbers declined strongly from 2000 to 2008, cattle numbers by 29%, sheep by 16% and horses by 8%. The number of holdings with cattle decreased by 44%. The decoupling of subsidies is regarded by producers as having been a turning point for hill farming, removing “the incentive to farm the moorland”. However, cattle numbers started decreasing well before decoupling, with the introduction of measures to reduce the pressure of stock on moorland (cross-compliance and the ESA scheme in the early 1990s), and the arrival of BSE and Foot and Mouth Disease.

The decline of cattle has created problems for delivering the kind of grazing that benefits habitats such as *rhos* pastures, and species such as marsh fritillary. Cattle or mixed grazing is also beneficial on moorland for controlling certain species such as *Molinia* and maintaining a mosaic of habitats.

Undergrazing is becoming an issue in places, although there is also local overgrazing – on open moorland, the mismatch often relates to a lack of shepherding. Shepherding is critical for balanced grazing, but costs are a problem. The total agricultural workforce in the case study area decreased by 12% from 2000 to 2008, and the total number of full-time workers by 15%, suggesting that in

future there may be less farm labour available for activities such as shepherding and swaling (burning).

LFA and lowland cattle and sheep farms make a net loss on agricultural production, incomes being dependent on SPS, AES and diversification. But hill farms are in an even worse position. Turner, M et al (2008)²⁴ found that Farm Business Income (FBI) for hill farms in the Severely Disadvantaged Area (SDA) was £9,207 in 2006/7, compared to £11,238 for LFA farms as a whole, concluding that “hill farming systems in 2006/7 failed to produce a fair return for the labour of the farm family ...and no return for their own capital invested in the business”.

Furthermore, LFA farms have experienced a reduction in SPS payments over the period 2005-12, as a result of the “dynamic hybrid” mechanism used in England to shift from historic to flat area payments, with SDA mixed grazing livestock farms expected to experience the steepest reduction in SPS payments (27% decrease), followed by SDA specialist sheep (19%) and SDA specialist beef (6%). Anecdotal evidence suggests cuts in SPS payments of up to 40% are possible on “extreme” hill farms.

86% of HNV farmland in the study area is under AES. Schemes have been successful in addressing overgrazing and bringing SSSIs into good status. Nevertheless, four of the interviewed farmers considered the reduction in stock numbers due to AES prescriptions to have caused scrub, gorse and bracken encroachment. Now there are concerns that farms coming out of ESA agreements might not enter Upland ELS (with lower payments) or HLS (more complex and limited budget).

A reduction in CAP payments and increasing controls on the use of hill land have made some farmers turn away from farming moorland, preferring to intensify on more productive land “downslope”, with breeds that are quicker to mature.

²³ Defra (2000,2007&2008) June Survey Data

²⁴ Turner, M, Robbins, K. & Silcock, P. (2008) Hill Farming Systems in South West England: Economic Viability and the Delivery of Public Goods. Report for the Duchy of Cornwall and Dartmoor and Exmoor National Park Authorities

machinery or grazing stock, so that some once important areas have become invaded with bracken and brambles or saplings and are reverting to broad-leaved woodland. Other former MG5 grassland has been planted with trees with Forestry Commission grants; tree-planting on low grade agricultural land but high grade conservation land continues today. In some cases good MG5 grassland, even sites notified as CWS, have been ploughed in recent years by farmers or landowners (this despite rules safeguarding unimproved grassland). Some species-rich grasslands have been lost, or will be lost, to built development. Overall, the attrition of species-rich grassland continues.

A general problem for the upkeep of semi-natural grassland is the lack of maintenance of the infrastructure associated with traditional grazing management, such as fencing, water supply, serviceable small-scale hay cutting equipment. The very least that potential graziers expect when taking on a grassland site is good quality fencing and water supply. There is some public resistance to new fencing and presence of livestock on accessed land, especially commons.

Certainly there are many positive examples of HNV farmland being maintained on commercial and amateur landholdings, thanks to combinations of personal motivation, a range of policy instruments and many excellent local initiatives; but the overall picture is one of steady decline resulting from localised abandonment and intensification.

Are current policies effective in maintaining HNV farmland?

CAP Pillar 1

At present there is no recognition under the Pillar 1 single payment (SPS) of the higher public goods value of certain types of land, such as HNV farmland, or of the production difficulties that limit the viability of farming this land. Overall, those farms which are the least intensive and producing the most public benefit are those making least money from farming. These farms are not being rewarded by SPS relative to public benefits they deliver and the support provided is not commensurate to the physical and legal (cross-compliance, EIA²⁵) limitations on this land.

So currently the burden of rewarding the higher public goods and production limitations of HNV farmland falls largely on AES. The Less Favoured Areas (LFA) measure could help in theory, but the very broad-brush way it is differentiated at present in Wales does not pick up the range of productive capacity at local level, while England has chosen to abandon LFA payments in favour of entry-level AES for the uplands.

Pillar 1 is currently in transition, as the CAP undergoes reform, with a probable move to “regionalised” payments set at a flat-rate for all farmland in a given region. In England, this shift from historic to regionalised Pillar 1 payments has taken place already, resulting in a general increase of support per hectare for land of lower productivity, such as unimproved grassland, which is good for the maintenance of HNV farmland. Since 2009 payment can be made on land such as traditional orchards, which previously had no CAP direct payments. However, the differentiation of payment levels in England is criticised for being unfavourable to the poorest LFA land, which receives a lower payment. Dartmoor evidence suggests a fall in SPS receipts over 2005-2012, with falls greatest on more extreme hill farms with a high proportion of land above the Moorland Line.

The possible reduction in CAP support for farming from 2014 is an important concern for HNV farmland, but does not lead to the conclusion that blanket support as provided

currently by SPS should be maintained. Rather it suggests the need for support to be targeted at farmland that is of particular public-goods value and that is also particularly threatened with abandonment or intensification - HNV farmland. Whatever cuts take place, support for this type of farmland needs to be maintained or increased, through an appropriate combination of Pillar 1 payments and AES.

Currently, abandonment of semi-natural grazing land is taking place, leading to scrub and tree encroachment – at a certain point, this land becomes ineligible for SPS. This mechanism is intended to ensure that only land under a minimum level of maintenance is eligible for SPS; this has a certain logic, but if the payments are too low to justify this maintenance then clearly the system has a basic design flaw.

In many ways it would better if scrub habitats were eligible for SPS. The current exclusion causes considerable problems. There is a confused message from government to landowners, in that scrub is valued under one payment scheme (agri-environment) and disregarded and liable to penalty if not declared as ineligible under SPS. This also creates an unnecessary administrative burden for the farmer and administration alike.

In the project areas, we found that a significant amount of HNV farmland was not registered on RLR²⁶/LPIS/IACS, and therefore not addressed in any way by CAP or RDP measures, as illustrated by Figs. 20 and 21. An average of 17% of all farmland is not registered in the Devon case-study areas. Given that mainstream commercial farmland is most likely to be registered for CAP payments, it seems likely that much of the non-registered land is outwith the commercial farming sector, for example on smallholdings that have never claimed CAP payments.

A further weakness with the SPS administration and data system (LPIS/IACS) is that it does not distinguish between intensively managed permanent pasture and unimproved or semi-natural pasture that is of high environmental value. As a result, the CAP cross-compliance mechanisms to



Figure 20. Land not registered (visible) in IACS, Llangadog (Carmarthenshire)



Figure 21. Land not registered (visible) in IACS on Mynydd Mawr (Carmarthenshire)

maintain permanent pasture in general are of little environmental relevance and targeting of Pillar 1 instruments to benefit HNV grasslands is made difficult. The Carmarthenshire project suggests that this defect in the system could be corrected relatively easily, by introducing an additional IACS code for unimproved grassland (see Carmarthenshire project findings, above).

The requirements of the EIA Directive, giving protection to protect semi-natural grasslands from intensification or conversion, are included under cross-compliance in the UK – this is a positive move that is not common across the EU. However, implementation is not fully effective (see Nature's Tapestry report by Grassland Trust²⁷). In England, many

²⁵ Environmental Impact Assessment, including provisions for preventing intensification of semi-natural land.

²⁶ Rural Land Register, the Land Parcel Identification System (LPIS) in England

²⁷ <http://www.grasslands-trust.org/project.php?projectId=7>

smaller patches of semi-natural farmland are not protected due to the 2ha minimum size threshold. EIA regulations are difficult to implement and remediation of damaged semi-natural land impossible to enforce if the land has not previously been recorded as valued habitat. Further, many landowners seem to be unaware of the EIA requirements, despite being included in cross-compliance.

In conclusion, it seems clear that neither the abandonment threat nor the intensification of semi-natural grasslands are addressed effectively through current Pillar 1 mechanisms. There is scope under the current CAP reform for doing something better with Pillar 1 payments, through a simple targeting mechanism that increases support on HNV farmland. For example, a top-up could be paid for low-intensity grassland and traditional orchards. Some of the basic grassland and hedge options under ELS could thus be transferred to Pillar 1, a simpler mechanism that potentially would bring in a larger number of farms and is 100% EU funded, while reducing the burden on the AES budget and allowing more of this to be spent on targeted measures.

A top-up payment for unimproved permanent pasture and meadows would give a positive message and incentive for keeping this land in low-intensity farming use. It would provide an incentive for this land to be clearly registered on IACS, facilitating the implementation of the EIA requirements and providing a key element of a system for HNV farmland monitoring. The top-up payments should be degressive, i.e. paid at a higher level per hectare for smaller areas of land.

However, these options are not being considered by the European Commission. Rather than attempting to target payments on particular farmland types or practices, preference has been given to standardised rules on permanent pastures, crop diversity and “ecological focus areas”, to be applied across the board.

Agri-environment schemes (AES)

Overall, AES play a crucial role as the main instrument for pursuing biodiversity targets on farmland and woodland, and without them there is no doubt that the situation would be worse than it is. Any reductions in the scope of AES would be likely to see an acceleration of the negative tendencies affecting HNV farmland.

However, policy is focussed strongly on the management of specific habitat types and discrete sites (e.g. SSSI targets, BAP priority habitats). Other land which has biodiversity value, but is not on a habitat inventory or in a designated site, generally is not targeted for conservation and is treated the same as all “other” farmland (see Fig. 22).

In the lowland Devon case studies, SSSIs covered only about 10% of HNV farmland in each case. The proportion of HNV farmland in these study areas covered by Natura 2000 sites ranged from 0.08% to 8.5%. These national and EU cornerstone instruments for biodiversity conservation are thus of minor relevance for the conservation of HNV farmland in these areas. Even county level designations (CWS) in the Devon studies were found to cover only between 17% and 47% of HNV farmland.

As shown in Table 3, a considerable proportion of HNV farmland is not participating in current AES, with coverage ranging from less than 50% in the Blackdown Hills to 70% in South Devon (in the Dartmoor study area the figure was 86%). Coverage of HNV farmland by HLS (that rewards conservation management) ranges between 11% and 19%. The figures for higher-level schemes are considerably higher (24-45%) if participation in classic schemes (e.g. ESA) is included, but there is concern that not all farms will make the transition from classic to current schemes, due to budgetary restrictions.

It is notable that the participation in AES of HNV farmland in these study areas is similar to, or lower than, the participation of farmland as a whole in the same areas. The case studies did not examine across the areas which AES options are taken up at farm level, and whether these options are the most appropriate for maintaining HNV farmland, although in the case of the farms visited in the

	% of all land in AES (current and classic schemes)	% of HNV farmland in AES (current and classic schemes)	% HNV farmland in current Higher Level Scheme	% of HNV farmland in "classic" schemes
Blackdown Hills	47.2	46	11.5	13
Culm	67.5	61	18	17
South Devon	66	70	19	26

Table 3: Uptake of AES on HNV farmland in three Devon case studies

Devon case studies, the AES options being applied were predominantly supportive of the HNV farmland present.

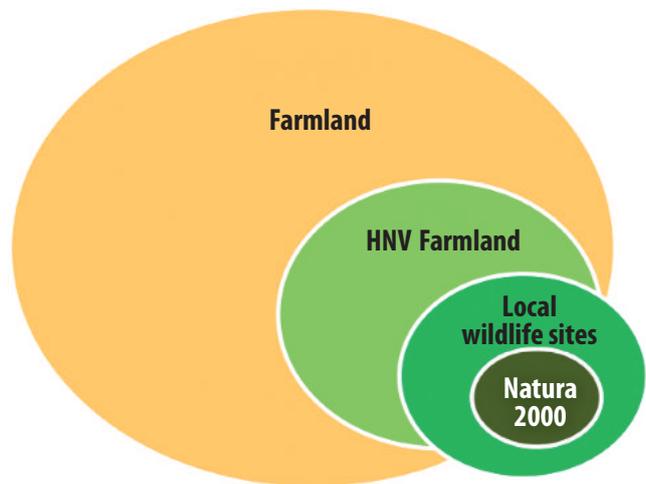
Overall, a widening of the AES coverage of HNV farmland seems to be needed. By identifying and actively targeting HNV farmland, as interpreted in the project areas, a wider matrix of farmland of biodiversity value could be addressed through policy, as represented schematically in Fig. 22. A key question therefore is whether HNV farmland criteria and/or maps be incorporated into future mechanisms for targeting AES.

There are many positive aspects to the current AES in England and Wales. The projects found the schemes to be playing a crucial role for biodiversity conservation, including the maintenance of HNV farmland on many farms. Nevertheless there are several aspects of design and delivery that seem to be limiting the effectiveness of the schemes from the point of view of HNV farmland. Continued development and roll-out of the schemes is recommended, with fine-tuning to increase effectiveness and reduce administrative complexity.

Both England and Wales have AES that in principle are readily available for all farmers, but in practice the schemes are not being taken up on a considerable area of HNV farmland in the case-study areas, as illustrated in Fig. 23. In a study of CWS management in Devon, about 25% of farmers and landowners visited with eligible land had not taken up an ELS agreement. Although such schemes are intended as relatively simple to join, this is not necessarily the perception of the farmer.

For small farms, the financial incentive to join AES is low, for example a 10ha LFA holding would receive just £486 a

Figure 22. HNV farmland is found well beyond the boundaries of protected areas. In this wider countryside, there are great differences in the nature value of farmland – some is of very high nature value, some is of very limited value. Policies should aim to maintain high values where these exist.



year under Glastir All-Wales Element (including the 20% premium for farmers within the LFA). There are holdings as small as 3ha currently participating in the Tir Gofal Scheme within Carmarthenshire. On Mynydd Mawr, there is little agri-environment uptake; as seen in the illustration above, much of the land is not even registered on IACS, exemplifying the need for the “locally-tailored project” approach (see below).

Higher level schemes can, and in many cases do, make a major contribution to the economic viability of positively managing HNV farmland through significant annual payments and, very importantly, capital payments for infrastructure improvements. On several of the farms visited by the Devon project, HLS had turned HNV farmland into an economic asset for the farmer, rather than being an uneconomic burden. However, a very large proportion of the HNV farmland identified in this project is not in HLS.

HNV farmland often is not entered into higher level schemes for a variety of reasons, e.g. the site is too small, not in a geographical target area, the bureaucracy is a disincentive, or the owner is not willing to commit for many years. Many smaller patches of high-quality HNV farmland are not benefiting from HLS in Devon simply because they are too small to reach the relevant habitat thresholds.

A particular problem in landscapes of small-holdings and small fields, such as Hudnalls in the Wye Valley, is that AES payments are not graded by field size (unlike forestry

planting grants), so the small fields that still have good grassland attract small payments. Owners are given no incentive to bother with them, and they have no recognition of the high cost per hectare of managing small fields. A scheme is needed that offers realistic incentives to manage such land 'moderately', i.e., which maintains the semi-natural grassland whilst utilising the fields for grazing and the boundaries for, say, firewood production. Payment rates could be tiered so that smaller fields and holdings receive progressively higher rates than larger fields and holdings.

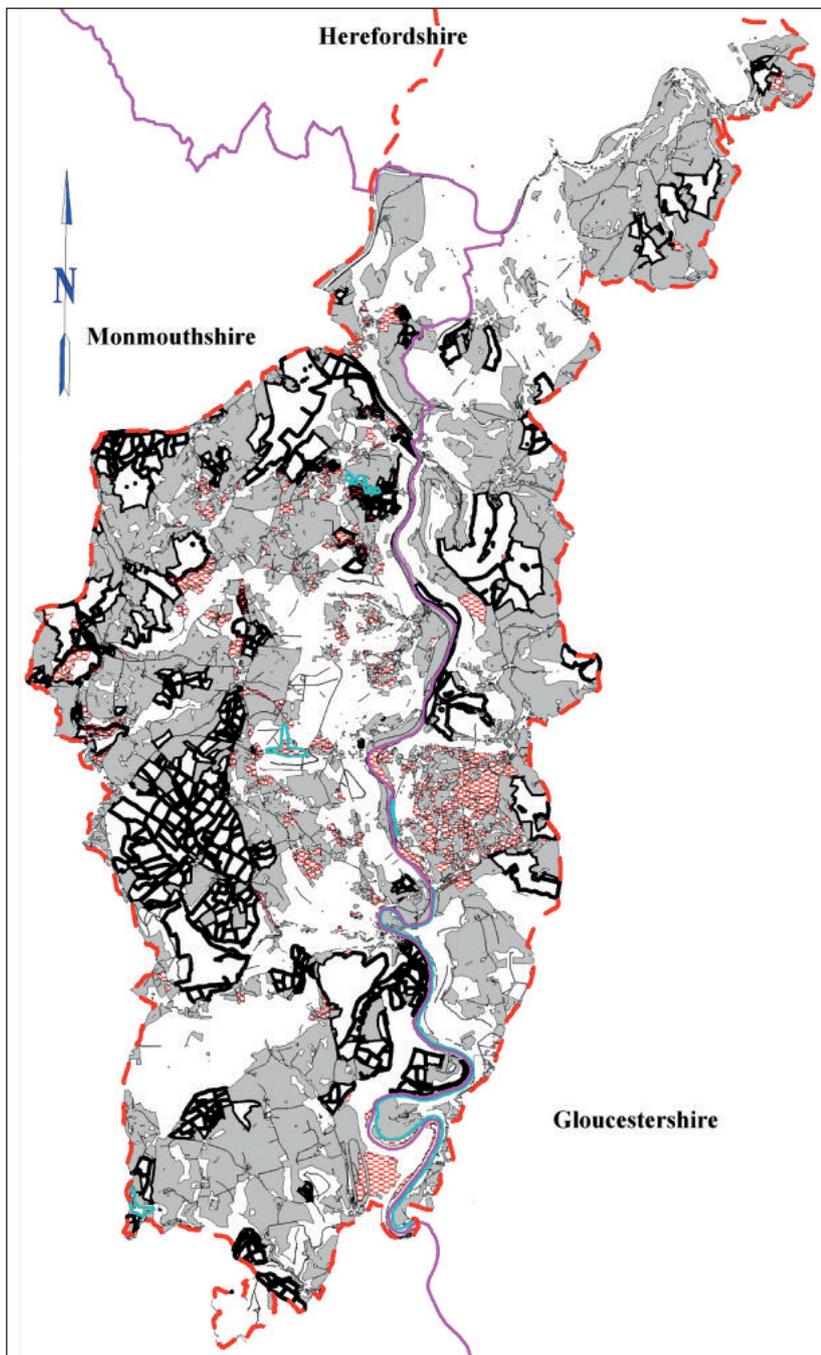


Figure 23. Wye Valley AONB, showing apparently very little overlap between AES uptake and the presence of semi-natural grasslands.

Graphic by Border Ecology. OS Crown copyright. All rights reserved (100024168).

-  County boundaries
-  Wye Valley AONB boundary
-  Farmland without AES or semi-natural grassland
-  Semi-natural grassland
-  SSSI containing semi-natural grassland
-  Area under Environmental Stewardship Schemes (England) or Tyr Gofal/ Tyr Cynnal (Wales)

What specific policy improvements and innovative approaches can be proposed for addressing HNV farmland?

Capital payments linked to conservation on farmland

Capital payments, for fencing and scrub management for example, are extremely important to the success of schemes for maintaining grazing on HNV farmland. Scrub control also needs to be seen as a long-term management aim, not as a one-off activity. A study from 2007 found a lot of scrub encroachment even on HNV farmland participating in AES in the Blackdown Hills²⁸.

In Devon, the absence of capital payments under ELS is seen as an important issue that should be corrected. Good results have been noted where small capital grants are operating within projects such as Working Wetlands and the East Devon and Blackdown Hills Grazing Links Project – these should be mainstreamed through ELS, and/or through RDP-funded Local Partnership Projects (see below).

Especially for land that lies beyond the reach of AES for the various reasons referred to above, it is essential for alternative grant sources to be available. Various grants are or have been available for biodiversity projects on such land, including from local authorities, conservation agencies and NGOs, with considerable achievements. However, such aid tends to be patchy and ad hoc, compared with AES intended primarily for mainstream farmland.

It seems clear that financial support needs to go beyond what has been the “traditional” scope of AES, offering support to those who are not strictly farmers but nonetheless are landowners managing their land to conserve and enhance its biodiversity, and as a result are ensuring the delivery of the ecosystem services that HNV farmland can provide. Often they are not de jure beyond the reach of AES, but the advice and administrative structures mean that in practice they are. Capital grants schemes could be provided under RDP Axis 4 (LEADER), but authorities in England and Wales have chosen not to use LEADER to deliver conservation objectives.



Figure 24. Marsh fritillary, a species especially associated with pastures and meadows under low-intensity farming use in the west of the British Isles, and reported to be declining by over 10% each decade. Source²⁹

Joined-up approaches for environment and economy

A key aspect of the HNV farming concept is the recognition that maintaining these considerable areas of land in appropriate farming use cannot be achieved solely through a “nature management” approach. The socio-economic realities and needs of farming and land management must be taken into account, and opportunities should be sought for increasing the economic sustainability of HNV farmland.

Linkages should be built and promoted between AES and investments in development of the farming enterprise (including diversification), through the grant schemes themselves and the way they are delivered to farmers. Rules on what RDP grants can support at the farm level should be flexible enough to allow for purchase of livestock, buildings etc. (that tend to be seen as “production”) when these investments are linked to the maintenance of HNV farmland.

The fact that Axis 2 of RDP is managed and delivered separately from Axis 1 and 3 is a hindrance to more

²⁸ DWT (2007). East Devon AONB and Blackdown Hills AONB Grazing Links. Needs Assessment Project Report. Devon Wildlife Trust

²⁹ <http://www.ukbutterflies.co.uk/species.php?species=aurinia>

joined-up approaches on the ground. Linkages are not made between improving environmental outcomes, improving the economic sustainability of environmentally friendly enterprises, and improving related rural community aspects.

The inflexibility in RDP rules for budgetary allocation and expenditure by Axes has created difficulty in being able to direct resources to local priorities. LEADER funding, used to deliver essentially Axis 3 objectives (quality of life and diversification), has not been able to support projects seen falling under Axis 1 (linked to primary production), for example in the case of the Making It Local Local Action Group in the Blackdown Hills and East Devon.

Under the European Commission's latest proposals for CAP reform, future RDPs will not be bound by the current system of four Axes, and national authorities will be encouraged to "mix and match" measures in order to pursue rural development priorities in an integrated manner³⁰. The proposed regulation also introduces the possibility of thematic sub-programmes that combine packages of measures to pursue particular priorities or issues, with the option of higher grant rates to recipients, an option that could be used to support HNV farming.

Advisory roles, local adaptability and achieving critical mass of involvement at local level

AES have been made much more successful (uptake, quality of implementation and results at farm level and targeting at landscape scale) by the facilitation offered by NGOs and other private sector bodies, alongside the work of government agency staff. Examples include Working Wetlands (DWT project in the Culm), Neroche (Forestry Commission project in the Blackdown Hills), Cirl Bunting Project (RSPB South Devon) and Butterfly Conservation work with farmers on Dartmoor. An important complementary role in many cases is the provision of small grants through local projects.

In areas not receiving this concerted attention, there is often insufficient pro-active advice to encourage farmers into schemes, and to guide farmers on how they can best integrate conservation into existing farming systems –



Figure 25. Green-winged orchid in Monmouthshire, Wye Valley. (S. Smith, CCW)

adapting systems, enterprises and grazing regimes for optimal economic and environmental benefit. The needs of HNV farmland on the ground go well beyond providing general farm advisory services, or a minimum of advice on cross-compliance and AES.

In areas where a large part of HNV farmland is found on amateur holdings and is thus largely beyond the reach of mainstream policy, conserving this land in active management depends very much on local community projects and small grant schemes. There is a wealth of such projects around the country, such as the Parish Grasslands Project and the Monmouthshire Meadows Project in the Wye Valley. But typically many local projects depend on insecure funding sources, with the result that there is often a lack of continuity in the long term.

Local Partnership Projects

It is ironic that the most innovative and pro-active projects for supporting HNV farming at the local level are rarely, if ever, funded from RDP. They tend to rely on NGO and conservation agency funding, and sources such as LIFE and National Lottery. This needs to change.

RDPs should include a facility for funding local projects that provide co-ordinated, proactive approaches to HNV farmland maintenance within a landscape area, and more joined-up thinking between organisations. There needs to be more

³⁰ Proposed EAFRD regulation (COM(2011)627/3)

Wye Valley proposal for a Local Partnership Project on HNV grasslands

Under the Wye Valley HNV farming project, a detailed proposal was prepared showing how a Local Partnership Project (LPP) could work, drawing on the experience of several grassland and grazing projects in the AONB involving local communities and landowners³¹.

Species-rich grasslands are among the most important habitats of the Wye Valley AONB, but many of these semi-natural pastures and meadows have been lost through ploughing, fertilisation and reseeding, or through abandonment. A number of projects, such as the Parish Grasslands Project and the Monmouthshire Meadows Project, have sought to protect, maintain and restore semi-natural grasslands, with varying degrees of input and success. As in other parts of the country, these initiatives tend to be quite localized and to suffer from a lack of continuity, especially because funding is ad hoc.

The starting point for a new, long-term project addressing HNV grasslands across the AONB would be to establish a target area (as intended under the EU's HNV farmland indicator). From the analysis of available data, the total area of HNV grassland, including semi-natural grassland and semi-improved grassland which forms part of the matrix of grassland habitats, currently lies in a range between 2,315ha and 5,750ha (i.e. 7-14% of the AONB). It is estimated that existing grassland projects cover approximately 10-15% of the total HNV grassland area, so a target area of 2,000ha, for example, would be a major advance on current achievements.

The overall aim of the LPP would be to improve the environmental and economic sustainability of HNV grasslands in the AONB, through appropriate use for grazing and/or hay cutting. The LPP would have three overarching objectives:

- To conserve and enhance grassland habitats and species, and associated landscape features.
- To support and promote extensive farming systems,

specifically low-input cattle and sheep grazing and hay meadow management, and the marketing of the high-quality products of these systems.

- To engage local communities with grasslands and grazing (e.g. through education, training and volunteering) and improve the contribution of grassland sites and extensive farming systems to the local economy (e.g. encouraging the local production and consumption of beef and lamb, using local contractors, and promoting traditional skills).

The LPP would aim to deliver:

- An increase in the area of HNV grassland under positive management in the AONB, including a number of restored sites
- Two local grassland groups sustained and three new groups created (e.g. Woolhope, Ross-on-Wye, Forest of Dean).
- More cattle and sheep farms involved with extensive grazing and hay meadow management, with profitable businesses
- More non-farming businesses linked to HNV grassland and grazing (e.g. contractors, butchers, retailers etc.)
- Improved landowner and farmer awareness of HNV grasslands and extensive grazing systems
- More local people involved with HNV grasslands and grazing in a range of different ways
- More resilient and sustainable grassland sites and systems of management (a result of the above, and investment in infrastructure, markets, education etc)
- Grants to farmers and other landowners from project funds, especially for capital items and actions prioritised by the project that are not covered by AES and other existing RDP grants.

³¹ <http://www.efnecp.org/projects/united-kingdom/wye-valley/>



Figure 26. Close-up of the diversity of Culm grassland in the Torridge and Tamar working wetland area.

engagement with local communities when setting the agenda for farmland environmental conservation in their areas, including providing and disseminating advice.

The development of a common Vision for the future of the farmed environment on Dartmoor is a positive example of engagement with farmers, and this Vision now helps to guide AES applications in the area. The initiative has continued as a partnership between farmers and statutory agencies, evolving in 2010 into the Dartmoor Farming Futures initiative.

Local projects are needed that include clearly defined aims for HNV farmland conservation within a national/regional framework, and that support the integration of HNV farmland into farm businesses. Funding needs to be agreed over at least 5 years – benefits take time to show – and there should be on-going funding available if such a project is proving successful.

Fortunately, a measure to support Co-operation Projects is provided for in the European Commission’s latest proposals for RDPs from 2014. Article 36 is for support for “co-operation” involving at least two entities and in particular:

“co-operation approaches among different actors in the Union agriculture and food chain, forestry sector and among other actors that contribute to achieving the objectives and priorities of rural development policy, including inter-branch organisations;”

Eligible themes include: “collective approaches to environmental projects and ongoing environmental practices”.

Eligible costs under the EAFRD Co-operation measure would include the running costs of the co-operation project.

This seems an excellent opportunity for future RDPs in England and Wales to support Local Partnership Projects for the maintenance of HNV farmland that are embedded into the local community, particularly the farming community.

See Box 4 for an example from the Wye Valley project of how this could work.

HNV farmland indicators, data, monitoring

The HNV farmland indicator has potentially several functions in the policy process:

- To assess the ex ante position, both qualitatively and quantitatively (providing a baseline) and, in the light of budgetary and other constraints, to inform an appropriate choice of actions. They will also increase understanding of the baseline situation.
- To direct the targeting of measures to ensure value for money against policy objectives.
- To show how the qualitative and quantitative position changes over time.
- To help understand the relative impact of policy measures in the context of wider natural and social pressures, providing useful information for the improvement of measures and their targeting.

At the heart of the HNV farmland concept is semi-natural farmed vegetation. Identifying this correctly and reliably is a key first step in the development of policies to support biodiversity in the wider countryside on the one hand and the socio-economic systems linked to high levels of biodiversity on the other. Equally important is to be able to monitor the extent and condition of this land over time. Ideally, we should also have information on how the farming systems that use semi-natural land are evolving, in order to plan our policy response. If we don’t know what is happening, we cannot respond efficiently.

All of the projects found that data sets (land cover, habitats and species inventories, farm statistics) do not lend themselves well to identifying HNV farmland in a robust manner across a locality or region. However, fortunately the Carmarthenshire project coincided with a major development in land cover mapping in Wales – the release, in sections, of

the first draft of the Habitat Inventory Map of Wales (HIW).

Of all the data sets examined, only the HIW appears to offer a way forward for both identifying and monitoring the extent of HNV in the study area and probably across Wales. It can do this on a field by field scale without the necessity for field by field survey. Although the system is still in development, it clearly has this potential.

The HIW is considered to be about 75-80% accurate in terms of identifying habitats (CCW personal communication). In this study it was found that the HIW identified 84% of the HNV habitat in six of the eight sample areas. It did not identify any land as being HNV that was not. While it makes errors in classifying some HNV habitats, it is very probable that this level of accuracy will improve as HIW is developed.

The latest UK Land Cover Map (LCM2007) is potentially very relevant. It has been derived from satellite images and digital cartography and gives land cover information for the entire UK, based on BAP Broad Habitats, at a considerably higher level of accuracy than LCM2000. Unfortunately LCM2007 was not available at the time of the projects presented here. The sample survey of the Countryside Survey (CS) is also of considerable interest, and was the model used in Germany for establishing its HNV farmland monitoring system.

Follow-up work to this project could fruitfully investigate the ability of LCM2007 to identify semi-natural farmland, and also the possibility of using CS sample plots as a basis for qualitative monitoring in parallel with HIW-type remote sensing for quantitative monitoring. In principle, there is no reason why the sample survey approach should not be extended from biological monitoring to the monitoring of farming systems and practices, thus providing a complete picture of farming tendencies on HNV farmland.

To complete the toolkit, the LPIS/IACS system should be adapted to incorporate HNV farmland criteria, by recording parcels and landscape features identified as HNV through a combination of the HIW approach and information supplied by the farmer, with the help of field survey where necessary. In this way, the same data and administration systems can be used for accurate monitoring of HNV farmland, and for reliable targeting of policy instruments.

Conclusions and ways forward

The concept of High Nature Value (HNV) farming developed in the early 1990s from a growing recognition that the conservation of biodiversity in Europe depends on the continuation of low-intensity farming systems using semi-natural vegetation across significant areas of countryside. Although the term has not been widely adopted in the UK, the approach is entirely in tune with the increasing recognition that effective biodiversity strategies cannot be built solely on the protection of priority habitats and prime sites. There is growing understanding of the need for landscape-scale conservation, and for robust assessment and monitoring of ecosystems and their services.

HNV farmland is not just an indicator for RDPs required by the EU; it is part of a strategic approach to pursuing biodiversity objectives through farming and rural development policies. This means recognising that certain types of farmland and farming landscapes are of particular value for biodiversity, and face particular economic and practical challenges for their maintenance. This land includes existing designations such as SSSI and county sites, but also extends far beyond them.

In England and Wales, work to clarify HNV farming and put into practice effective support strategies has moved forward slowly. But in fact many of the necessary tools and policy measures are already in place, and quite a lot is being done already to maintain HNV farmland, although without using this term.

However, it is equally clear that neither country can claim to be fulfilling the requirements of EU policy as it refers to HNV farming. There has been no comprehensive assessment of what is HNV farmland, or what is happening to it, and very little dialogue has been promoted on the subject.

Fully implementing a strategy for HNV farming does not imply a wholesale reshaping of policies for farmland biodiversity. But it does imply some refocusing and adaptation, in terms of key measures such as AES, and tools such as Countryside Survey and IACS. It also implies a rational approach to biodiversity conservation on farmland – targeting support measures on landscapes that

support high proportions of HNV farmland and its associated ecosystem services; and restoring HNV farmland in areas with the highest potential, in order to achieve robust ecosystems at the landscape scale.

An important step is for the new RDPs in England and Wales from 2014 to give explicit recognition in their ex-ante analyses to the processes of abandonment and intensification occurring on semi-natural farmland outside nationally designated sites; and to aim to prevent further loss of HNV farmland to abandonment, agricultural intensification and development.

Putting this aim into practice will depend on a combination of national support measures (e.g. through Pillar 1 and AES) and local initiatives (e.g. Local Partnership Projects). Top-down national schemes get a lot of attention, but more help is needed from public policy for local initiatives that work to deliver national objectives in innovative ways. Crucially, sufficient human resources must be available on the ground to facilitate and encourage up-take of measures and to create an effective critical mass of activity at the landscape scale.

National strategies need to be developed to engender this parallel approach – top-down and bottom-up. Both national and local approaches should aim to join up different policy strands and instruments, with measures

that promote ecological and economic sustainability of HNV farmland in combination. Support measures should be based on an understanding of the socio-economic situation of farms and the place of HNV farmland on the farm, and should encourage the development of farm business activities based on HNV farmland.

This requires more integrated strategies and measures, that don't hive off semi-natural farmland as a "habitat" separate from the main farming activity and under a set of dictated "management prescriptions", but rather provide support for using this land within a farming business. This could take the form of grant aid for business development that "valorises" HNV farmland, alongside AES incentives for managing this land.

We need to know what is happening to HNV farmland – this is what the HNV indicator is for – but the fact is that at present we do not know. The projects presented in this brochure provide some insights, including into how effective systems could be established for identifying HNV farmland and monitoring changes. The projects are not exhaustive, and certainly are not the last word on HNV farming and rural development policy. But there is no reason to think that the issues they identify, both problems and opportunities, are not replicated across large areas of England and Wales, and indeed Scotland and Northern Ireland.



Figure 27. Restoration of hedge bank on Culm grassland.

