

# Government Initiatives applied to the future of flood meadows

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## Summary

The impact that the government and its policies have on flood meadows can be appreciated by considering the huge changes in the distribution and botanical composition of flood meadows that have occurred over the last fifty to sixty years.

## A brief history

Following the food shortages experienced during the First and Second World Wars there was a government push towards self sufficiency in food production, as laid out in the Agriculture Act of 1947. Price guarantees were introduced for eleven products including sheep and cattle, wheat, barley and oats. The Ministry of Agriculture Fisheries and Food (MAFF) also offered grants and subsidies to farmers for increasing chemical inputs and for “structural change” which in the case of flood meadows often meant installation of drainage. Under the Common Agricultural Policy (CAP), introduced in Europe in 1962 but which only began to affect British farmers from 1973, farmers received headage payments for keeping livestock and hectare payments for growing crops such as wheat, barley and oil seed rape as part of the drive for food security.

These policies encouraged intensive management of grassland, often associated with production of beef cattle in the lowlands. Silage making (with its earlier cutting date preventing wildflowers from setting seed) increased at the expense of haymaking and use of high levels of fertilisers to increase production, gradually reduced the botanical diversity of many lowland meadows. The Arable Area Payments Scheme (AAPS) meant that farmers received subsidies for growing arable crops which led to the ploughing up of many former hay meadows and encouraged the ongoing cultivation of even marginal land. Changes to the soil fertility and water table obviously had a huge effect on the plant communities of these flood meadows. By the 1980s it is estimated that 97% of species-rich lowland meadows had been destroyed or heavily degraded (Fuller, 1987).

## Designation

As well as the push for increasing food production, there was also an increased demand for land for development. This led to the designation of the first Sites of Special Scientific Interest (SSSIs) in 1949 by the Nature Conservancy Council, largely to protect them from development by giving them statutory recognition in the planning process. Most of Oxfordshire's MG4 SSSIs were designated between 1955 and 1980. Today there are around 4,000 SSSIs in England of which 66 are MG4 meadow foxtail - great burnet flood meadow (National Vegetation Classification). Since then, certain sites have been given increased protection both nationally (the first National Nature Reserves were designated in 1952) and internationally (following the 1994 Habitats Regulations, sites such as Oxford Meadows – which includes Picksey and Yarnton Meads, Cassington Meadows, Wolvercote Common, Wolvercote Meadows and Port Meadow SSSIs – were designated as Special Areas of Conservation). Designation has been a strong tool for protecting these special sites,

affording them not only legal protection but also additional grants and subsidies from the government to assist with appropriate management.

## Agri-environment schemes

With the introduction of the Countryside Act in 1968 the government attempted to reconcile the interests of wildlife with those of agricultural production by offering compensation to owners of SSSIs for managing them non-intensively and therefore preserving their intrinsic interest. This was followed by the 1981 Wildlife and Countryside Act and the 1986 Agriculture Act, which among other things introduced the first designated “Environmentally Sensitive Areas” (ESAs). By 1994, 22 ESAs had been designated in England covering around 10% of the land area. They represented a complete reversal of policies compared with the 1947 Agriculture Act, the ESA scheme (1986-2004), and the Countryside Stewardship scheme (1991-2004), which operated in the wider countryside, offered grants to farmers for maintaining and increasing biodiversity on their farms, rather than concentrating on food production.

For example, the Upper Thames Tributaries ESA, covering the upper reaches of the rivers Thames, Cherwell, Evenlode, Windrush and Ray in Oxfordshire, is one of the country’s strongholds for both flood meadows and breeding waders such as snipe, lapwing, curlew and redshank which use the meadows for feeding and breeding. Under the ESA scheme, farmers were offered significant grants to revert arable land in the flood plain back to grass, and to adopt favourable cutting and grazing practices on their existing grassland. Capital grants were also made available within this area for projects such as decommissioning the drains to allow the fields to return to their natural flood regimes, or spreading wildflower seed from species-rich fields onto ex-arable land or improved grassland.

Since the 1990s these agri-environment schemes have been instrumental in the reversal of the huge declines in Britain’s biodiversity suffered over the last fifty years. See Table 1 for an example.

**Table 1: The success of the Upper Thames Tributaries ESA**

	<b>Pre-1994</b>	<b>1994</b>	<b>2005</b>
<b>Land entered into agreement (Ha)</b>	0	3125	7842
<b>Area of arable land reverted back to grass under ESA scheme (Ha)</b>	0	307	2775
<b>Breeding wader pairs <sup>1</sup></b>	158 (1982)	134	220
<b>Breeding curlew pairs <sup>1</sup></b>	18 (1982)	23	54

<sup>1</sup> McVey (RSPB) 2005

## Government targets

Following the 1992 Rio Convention on Biological Diversity, with conservation taking an even higher profile internationally, the UK published its Biodiversity Action Plan (UK BAP) in 1994 which set out the extent of and threats to a number of important habitats, including lowland meadows, and discussed the actions required to protect, enhance and even recreate them. This baseline information would be important to monitor future changes. In 2001 at the EU Summit in Gothenburg, the EU set its member states the target of halting biodiversity loss by 2010. In support of this

motion the UK government set itself two Public Service Agreement (PSA) targets in 2002 focused entirely on tackling biodiversity loss:

- Secure favourable condition on 95% of SSSIs by 2010
- Reverse the decline in farmland birds by 2020

Both of these are indirectly linked to the conservation of lowland hay meadows, firstly because many lowland hay meadows are SSSIs, and secondly because they contribute to the habitat requirements of many farmland birds such as the skylark, lapwing, grey partridge, yellow wagtail and reed bunting.

## **Current policy**

As a result of the Curry report (2002), which called for radical changes to the agricultural sector, there was a major reform of the CAP in 2005, which decoupled subsidies from production and linked them instead to environmentally friendly farming practices. The government also began a review of the agri-environment schemes, which led to the closure of the classic schemes (ESA and CSS) to new applicants in 2004 and the launch of the new Environmental Stewardship scheme in 2005.

## **Single Payment Scheme**

The Single Payment Scheme was the result of CAP reform. It replaced eleven production-oriented subsidies with just one payment. Being decoupled from production it therefore leaves farmers open to respond to market demand. In order to receive their Single Payment farmers are required to meet a series of standards, known as cross compliance, which includes maintaining their land in good agricultural and environmental condition (GAEC). Under the GAEC rules restrictions are placed on overgrazing of semi-natural vegetation, and permanent pasture must be maintained as such, both of which are good news for flood meadows and should help to redress some of the problems of intensification experienced over the last half century. The fact that the subsidy is no longer linked to arable cropping also means that farmers can be more flexible about reversion of floodplain land, which “never grew a decent crop anyway”, back to grass. There were suggestions that the CAP reform could lead to problems of undergrazing and abandonment, as the incentive to keep livestock has been lost, but so far there is little evidence that this is actually happening.

The CAP funding is modulated both at a European level (4% in 2006) and at a national level (6% in 2006), meaning that a proportion of CAP payments are not paid straight to the farmers but are redirected into other areas. The national modulation is being used to fund the government’s new Environmental Stewardship scheme, so by joining the scheme farmers can recover some of the modulated money for themselves.

## **Environmental Stewardship**

There are two elements to the Environmental Stewardship (ES) scheme: Entry Level (ELS), which includes an organic strand (OELS) and Higher Level (HLS). Entry Level Stewardship is open to all farmers in England and includes simple but effective environmental measures that farmers can sign up to. They have the choice of 60 management options covering a range of different habitats and features, each worth a

certain number of points. If they can score enough points (30 per hectare, 60 for organic farmers) across their whole holding then they receive a five-year agreement and £30/ha/yr across their whole holding (£60/ha/yr if they are registered as organic). In terms of grassland management, EK2 “Permanent grassland with low inputs” and EK3 “Permanent grassland with very low inputs” are the most appropriate Entry Level options for managing lowland meadows. However because the scheme and choice of options are entirely voluntary it depends on the farmer whether or not he enters his lowland meadow into this option – he may instead decide to carry out hedge or ditch management or perhaps some arable options. So the effects of Entry Level Stewardship on lowland meadows have been variable! Regardless of which options are chosen, the scheme will still have some benefits for lowland meadows because even if the farmer does not choose options for their management he is still obliged to adhere to Good Farming Practice (GFP) and GAEC which prohibit overgrazing, undergrazing and damage to semi-natural vegetation. However it has been recognised that ELS could achieve more for wildlife if there was a more effective way in which Natural England could influence which options are chosen, and this is currently under review.

Higher Level Stewardship has the potential to deliver greater benefits, as it is targeted towards sites with high environmental potential and features of particular interest. Applications, from the quarterly application rounds, are scored against regional targets, as entry to the scheme is competitive. An ideal application meets multiple objectives, including biodiversity, public access, landscape, protection of historic features, and resource protection. If an agreement is offered, the Natural England adviser and the farmer will agree the final choice of options. There are different payments for different options, with options being located where they will be of most benefit. Options are not typically placed on every field. A species-rich flood-meadow would be flagged up as a feature of interest during the application process and the Natural England adviser would recommend an appropriate management option to protect or enhance it. In most cases, this would be HK6/7 “Maintenance/Restoration of species-rich semi-natural grassland”. The exact management prescriptions would be agreed between the Natural England adviser and the farmer but would include late haymaking with aftermath grazing and no applications of fertilisers or pesticides would be permitted.

Higher Level Stewardship can also fund creation of new areas of habitat, for example alongside an existing species-rich flood-meadow if a suitable arable field is identified. Soil samples would be taken to ensure the nutrient status wasn't too high (phosphate index of 0 or 1) and then HLS could fund a seed transfer operation from one field to the other, and its subsequent management under option HK8 “Creation of species-rich semi-natural grassland”. In the past, wildflower re-seeding was usually done using an off-the-shelf wildflower mix from one of the major suppliers, but now the preference is for local seed: a suitable donor site is found and the seed is transferred by green hay spreading, which is 100% funded by Natural England. Capital works to install the infrastructure required for ongoing management, such as fencing or water supply, can also be grant aided.

The other important benefit of Higher Level Stewardship stems from the close working relationship that is built up between the Natural England adviser and the

farmer. Site visits enable the adviser to enthuse the farmers about the wildlife present on their farms and explain how to provide suitable habitat for the different species.

The main constraint of Higher Level Stewardship as regards flood meadow protection and enhancement is that, up until now the requirements have been such that, in order to be considered for the scheme, farms have to meet several different objectives so a farm with flood meadows and little else would not have been offered an agreement. This is currently being reviewed however and the intention is that from now on geographical target areas will be identified and sites within these areas will be more likely to be offered an agreement, in order to try to link up existing good areas of habitat. SSSIs are also prioritised with the aim of bringing them into favourable management to meet the 2010 target. Tables 2 and 3 show what has already been achieved under ES since 2005.

**Table 2: National and South East regional uptake of Environmental Stewardship**

The (O)ELS figure represents the total area entered into (O)ELS in both (O)ELS and (O)ELSHLS agreements. The HLS/OHLS figures represent the area under HLS/OHLS options only.

	<b>Nationally</b>	<b>South East</b>
<b>Area in ELS (Ha)</b>	4,103,154	501,677
<b>Area in OELS (Ha)</b>	255,372	38,070
<b>Area in HLS (Ha)</b>	107,829	14,593
<b>Area in OHLS (Ha)</b>	13,049	2,685
<b>Area of SSSI under HLS (Ha)</b>	35,600 (3.3% of total)	9,952.02 (7.1% of total)

**Table 3: Environmental Stewardship Uptake by option in Oxfordshire**

Options EK2 and EK3 relate to any permanent grassland, whether it is species-rich or not.

Options HK6, HK7 and HK8 relate to any species-rich semi-natural grasslands, not necessarily just lowland hay meadows.

	<b>No of agreements</b>	<b>Area under agreement (Ha)</b>
<b>EK2</b>	<b>249</b>	<b>4,184</b>
<b>EK3</b>	<b>190</b>	<b>1,927</b>
<b>HK6</b>	<b>14</b>	<b>173</b>
<b>HK7</b>	<b>20</b>	<b>185</b>
<b>HK8</b>	<b>7</b>	<b>77</b>

## Research

As well as practical work restoring habitats on the ground, the Department for Environment, Food and Rural Affairs (Defra) also spends more than £300 million per year on research into a range of social and natural science disciplines. This ensures that their policies are based on sound scientific evidence. Typically the money is offered to research institutes who carry out the studies. For example, in recent years Defra has been funding Reading University's Centre for Agri-Environment Research to investigate green hay spreading as a method of increasing diversity in species-poor grassland and arable reversion (Edwards *et al.* 2007). Their findings are now being taken into consideration by Natural England advisers working on the ground.

## **Funding Projects**

As well as research, the government also funds projects, such as the Grazing Animals Project (GAP), funded by Natural England, which has been operating since 1997. Nationally the project undertakes research and produces publications on grazing and grassland management and at a local level their Local Grazing Schemes aim to link up graziers with available land in order to secure the best outcomes for biodiversity.

## **Regulation**

The main legislation that applies to flood meadows is the Environmental Impact Assessment (EIA) Regulations, which was revised in 2006. The Regulations cover areas of land that have not been cultivated in the last 15 years, fit their definition of “semi-natural”, and are more than 2 Ha in size. The same operation carried out over several years would be viewed as one to avoid a piecemeal approach to habitat destruction. The Regulations require farmers to seek permission from Natural England if they want to fertilise, cultivate, drain or otherwise “improve” such land for agricultural purposes.

The EU Nitrates (1991) and Water Framework (2000) Directives are the other two major pieces of legislation to affect floodplain meadows in recent years. Because these meadows are typically inundated for several weeks every winter, and are therefore enriched by any nutrients that are carried in the flood water, their fertility and therefore their species composition will be directly affected by the amount of nutrients, particularly nitrates, in the water. Although traditionally managed floodplain hay meadows rely on flood water for most of their nutrient input (they usually receive few other inputs) if they receive too much nutrient the specialist flora could be altered. These two EU directives, which aim to keep nutrients in water to an acceptable level, therefore benefit hay meadow conservation.

## **Planning**

Pressure for urban development of land, particularly in the South East, is intense in the UK. There are various mechanisms in place to ensure that the impact of development on biodiversity is regulated. As well as adhering to national planning policy guidance, local authorities are also obliged to consult Natural England on any planning applications that may impact on a SSSI, and must heed their advice. Similarly they must consult the Environment Agency if the proposal falls within the flood plain. In 2006 the government introduced the Biodiversity Duty, which applies to all public authorities, and other bodies carrying out functions of a public character under a statutory power. The Duty requires them to take biodiversity considerations into account at all times when exercising their functions – this includes restoring and enhancing as well as just protecting biodiversity.

## **Conclusion**

The second half of the twentieth century saw some drastic changes to Britain’s countryside, and the loss of such a huge percentage of our lowland hay meadows is a poignant example of this. Government policies, particularly agricultural policies, were one of the major drivers of this change. However the tide has definitely turned and all efforts are now focused on protecting those remaining fragments of hay meadow

habitat and extending and expanding them wherever possible, mainly through agri-environment schemes. In addition, regulation is in place to ensure that no more species-rich hay meadows can legally be destroyed whether through agricultural improvement or development. The future therefore holds many opportunities for us to ensure that our hay meadows are still around for future generations to appreciate.

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