Flower-rich meadows and pastures

1. A Definition

Hedge-lined meadows and pastures in bloom in spring and summer, alive with butterflies and with a heady warm scent, are amongst the most beautiful and evocative of wildlife habitats. Their value lies not necessarily in their complement of rare species, but in the sheer variety and visual richness of plants and animals they support, many of which are now scarce.

The meadows and pastures encompassed by this Plan are those that occur on generally well-drained soils, albeit in association with some marshy communities, which are neither particularly base-rich nor acid ('mesotrophic'). Flower-rich meadows and pastures are a product of traditional farming practices over centuries, but survive only where the land is unimproved, having received little or no inputs of artificial fertilisers or herbicides, nor having been re-seeded, nor ploughed in recent years. Today the vast majority of grassland in Devon has been 'improved' by these means.

In a largely pastoral county like Devon most remaining flower-rich fields are grazed, though a hay crop is taken in some cases. Most of the remaining examples in Devon occur as rather isolated or inaccessible parcels of land, often on steep slopes, which have escaped agricultural improvement because they do not warrant the investment required. Such situations occur for example on the Blackdown Hills and some parts of South Devon and the Dartmoor fringes. A few examples on the 'Culm' have arisen through partial drainage or cultivation earlier this century of land which had been much wetter. Roadside verges often support flower-rich grassland, being relatively undisturbed and not subject to intense management, although these too are vulnerable to inappropriate management.

Flower-rich meadows and pastures are often associated with other open ground habitats such as marsh and heath, sometimes in mosaic, making precise definition difficult. Excluded from this Plan however are coastal grassland, which is treated under the Maritime Cliff and Slope Action Plan, and Rhos Pasture (purple moor grass and rush pasture), which has its own Action Plan. Species-rich dry acidic grassland is also excluded from this definition.

NVC Communities embraced by this definition are primarily MG4 *(Alopecurus pratensis-Sanguisorba officinalis* grassland) and MG5 (*Cynosurus cristatus-Centurea nigra* grassland). This Plan is related to the equivalent to the Lowland Meadows Action Plan of the UK Biodiversity Steering Group Report.

2. Why an Action Plan?

Since many of Devon's flower-rich meadows and pastures occur on relatively dry land with soils neither very acidic nor very alkaline they are well-suited to agricultural upgrading, and so most have been lost to more intensive management. What once was an abundant habitat is now very restricted, and what remains continues to be lost or degraded.

Though easily upgraded to improved pasture, such communities are hard to re-establish, even given low-input management over many years. This is partly because mineral elements in fertilisers, such as phosphorus, persist in the soil and inhibit the growth of many plants while supporting the growth of more vigorous grasses.

Flower-rich meadows and pastures are such a rich and conspicuously beautiful resource of biodiversity, and one our farmland habitats has suffered particular losses from factors such as agricultural change, that they deserve concerted attention to make them once more a familiar feature of the Devon countryside.

3. Characteristic wildlife

Because many of Devon's meadows and pastures occur on the rather thin soils of steeply sloping land they often lack the full complement of species found in grasslands in other parts of the country. Nevertheless this habitat is particularly species-rich. A great profusion and variety of plants occur, scores of species of myriad colours and forms can be found within a small patch of this grassland; orchids, vetches, yellow rattle and other conspicuous plants, as well as a variety of grasses.

Butterflies are often found in profusion. Swards with greater structural diversity are especially rich in insects, including high densities of grasshoppers.

Such a richness of insect life attracts bats and birds like green woodpecker (which relish ants), cirl bunting, which feed its young on a diet which includes a high proportion of grasshoppers, and barn owl, which feed on mice and voles hidden in tussocky swards.

4. Special species

The following species of conservation concern are associated with meadows and pastures in Devon. Species marked (p) are 'Species of Principal Importance in England' (NERC Act, S.41).

- **Mammals** brown hare (p), greater horseshoe bat (p)
- **Birds** skylark (p), song thrush (p), woodlark (p), barn owl, green woodpecker, cirl bunting (p)
- **Reptiles** adder (p), grass snake (p), common lizard (p)
- **Invertebrates** shrill carder bee (p), dark green fritillary, marbled white, dingy skipper, common blue, meadow grasshopper
- **Vascular plants** Amongst many others: corky-fruited water dropwort, yellow rattle, green-winged orchid, black knapweed, betony, rough hawkbit, creeping cinquefoil, ox-eye daisy, pignut, meadow vetchling, quaking grass, common bent, sweet vernal-grass, crested dog's-tail, red fescue, meadow brome

5. Current extent (1998)

The total UK resource of this habitat is estimated as 15000 ha. Devon is estimated to hold approximately 2000 ha, but this habitat may be under-recorded due to the isolated and fragmented nature of the remaining resource. In addition, and outside the definition of this Action Plan, are areas of coastal neutral grassland.

The habitat is thinly scattered across Devon, although the following areas have concentrations:

- Dartmoor; the area around Two Bridges, Postbridge, and Princetown contains fields traditionally managed as hay meadows.

- South Hams and Teignbridge, particularly on steep and inaccessible slopes.

- Blackdown Hills, on slopes, and associated with mires, surrounded by bushy hedgerows.

- The 'Culm'; areas of the habitat are found within the mosaic of Culm Grassland, scrub, woodland and heathland that characterises this area (see Habitat Action Plan for 'Rhôs pasture' for further information)

- Exmoor fringe zone of North and Mid Devon.

Devon has a very substantial resource of roadside verges; approximately 14,000 km of roads, corresponding to about 2,000 ha of roadside verge. However, of this very large resource, the area which is species-rich is relatively small and localised in distribution.

6. Current problems for flower-rich meadows and pastures in Devon (1998)

- Insufficiently attractive payments through agri-environment schemes for retention of permanent pasture under sympathetic extensive management regimes, compared with current levels of mainstream subsidy support for more intensive land uses. Agri-environment grant schemes not yet widely available enough to cover all good examples of the habitat.

- Low market prices for finished beef animals and falling milk prices, coupled with high land prices and input costs have provided an overwhelming pressure on Devon's farmers to intensify grassland management.

- This pressure to intensify has been supported historically by CAP price support, although this has been mitigated since 1992 by the introduction of sheep and suckler cow headage payments, linked to quotas and by an extensification top-up paid on the suckler cow and beef payments where stocking levels are below a prescribed level.

- Until March 1996, a demand for more slowly matured beef provided economic support to extensive systems. However, following the BSE crisis, all beef animals have to be finished under 30 months old, undermining the viability of extensive grazing systems.

- The lack of a clear definition of what is a “proper” management regime to maintain flower-rich meadows and pastures is a weakness of current management prescriptions. We know that regular/annual inputs of even small amounts of inorganic fertiliser can lead to loss of species diversity, but there is evidence that cessation of all fertiliser inputs is incompatible with the maintenance of species richness. Anecdotal information suggests that periodic application of farmyard manure will maintain high species richness.

- Use of slurry on fields, instead of, and in greater quantity than, traditional farmyard manuring. There is an associated problem in that Farm Waste Management Plan objectives dictate that slurry should not be put on prime agricultural land next to rivers to avoid it polluting water courses, but instead should be applied to “lower quality” land away from rivers. If “lower quality” land is interpreted by some land managers as ecologically important grasslands, then these may be degraded by any ensuing nutrient enrichment.

- A move from hay to silage production, with earlier and more frequent cutting has resulted in fewer flower-rich meadows. Not only is the change from hay to silage damaging but also it may be that the speed of contemporary hay-making, the lack of periodic late cutting and the lack of seed transported by machinery between fields are also key factors.

- Over-grazing by stock can significantly reduce the value of grassland to invertebrates and hence the mammals and birds which feed upon them. This said, the Extensification Premium, available through the Suckler Cow Premium and Special Beef Premium Schemes, has led to the mitigation of over-grazing on some sites.

- Abandonment and neglect, including lack of grazing. Although this may be beneficial to invertebrates and other animals in the first few years, the quality of the habitat significantly declines thereafter, and can be lost altogether if scrub or woodland is allowed to invade.

- Development, such as housing or mineral extraction. Associated with this is a perception that translocation of the habitat is an acceptable mitigation against the effects of development, when evidence from monitoring shows that it does not adequately replace the original sward.

- Practical difficulties of managing small and often isolated parcels of unimproved grassland in a sympathetic manner, when the vast majority of surrounding land is more intensively-managed.

7. Recent changes in extent (1998)

Most of the very substantial areas of flower-rich meadows and pastures that existed in former times have been lost to improved and semi-improved grassland. Between 1930 and 1984 semi-natural lowland grassland decreased by an estimated 97% in England and Wales.

A recent sample survey of a number of unimproved grassland sites within the Devon portion of the Blackdown Hills AONB has demonstrated the rate of change and loss in these sites in recent years. Between 1987 and 1991, 24% of sites had deteriorated due to inappropriate management, 24% of sites had deteriorated due to neglect, 4% of sites had been partly destroyed and 2% wholly destroyed (Ref: DWT 1992). It is likely that these figures are broadly representative of the general rate of loss of flower rich meadows and pastures in Devon.

However, the picture is not wholly one of losses; there are instances of gains of unimproved grassland from semi-improved habitats, although full reversion may take a long time to achieve.

8. Current site protection (1998)

Lowland hay meadows are listed in Annex I of the EU Habitats Directive, although the particular types of hay meadow found in Devon are excluded from that definition.

Some sites in Devon have been designated as SSSIs, including the following: Billacombe, Brooke's Farm, Dunnabridge Meadows, Hense Moor Meadows, Lambert's Castle, Occombe, Park Farm Meadows, Quarry Fields Farm, Southmoor Farm.

9. Biodiversity planning context

The Devon Biodiversity Action Plan forms a key link in the chain of biodiversity planning running from the National Plan, through regional guidance to local delivery.

National BAP Context

Habitat of principal importance in England (NERC Act, S.41):

- Lowland meadows

Current national BAP targets can be viewed on the Biodiversity Action Reporting System (BARS).

Regional Plan Context

Regional targets for priority BAP habitats can be found on the website of Biodiversity South West.

Associated Action Plans within the Devon BAP:

- Rhôs pasture
- Sea cliff and slope
- Parkland and wood pasture
- Rivers, streams, floodplain and fluvial processes
- Cirl bunting
- Greater horseshoe bat
- Great green bush-cricket
- Barn owl
- Brown hare
- Curlew

10. Biodiversity objectives and targets for flower-rich meadows and pastures in Devon

Please note: preliminary review of targets undertaken in 2004 – requires further examination.

Objective 1

Maintain the extent and condition of the Devon resource of flower-rich meadows and pastures.

Target: Secure existing areas of flower-rich meadows and pastures in sustainable management regimes; 60% of all sites >0.5 ha (and 95% of the resource within SSSIs) by 2010; 100% by 2015.

Objective 2

Establish low-intensity management on improved or semi-improved grassland sites, in order to link with and extend existing unimproved flower-rich meadows and pastures.

Target: Favourable management on 300 hectares by 2010, targeting Dartmoor, Blackdowns, South Hams and Teignbridge and the Culm Measures. Note: Full restoration to species-rich unimproved status is a long-term target, outside the time-frame of this plan.

Objective 3

Foster greater understanding and appreciation by farmers and land managers of the special character and value of flower-rich meadows and pastures in Devon.

Target: Ongoing.

Objective 4

Increase opportunities for public contact with, and appreciation of, flower-rich meadows and pastures.

Target: Ongoing.

11. Wider benefits from pursuing these objectives

The pursuit of the Objectives and Targets set out above will not only benefit the biodiversity of flower-rich meadows and pastures. Conservation has wider benefits and advantages for society, by providing a resource that is the basis of many aspects of the local economy, and by adding to the quality of life of the people of Devon in ways which are beyond financial measure. Thus enhancing the interests of biodiversity will also enhance the interests of society as a whole. Some of these wider benefits are as follows.

Opportunities for producers of, and outlets for, organically reared beef and lamb would be enhanced if more pasture land in Devon was devoted to low input, low disturbance management regimes.

Enhanced aesthetic pleasure from the countryside, since flower-rich meadows and pastures are especially appealing to all the senses.

Rarity of the habitat instils a sense of pride to landowners who own and manage flower-rich meadows and pastures.

12. Priority or indicative actions for flower-rich meadows and pastures in Devon

Action	Key Partners
1. Ensure planning policies and their implementation protects important grassland sites from inappropriate development requiring planning permission.	LAs; DCC; EN; HA; DBRC; DWT
2. Promote the management and restoration of flower-rich meadows and pastures through agri-environment schemes.	Defra; DWT; FWAG; RSPB
3. Ensure that grant-aided tree planting avoids important unimproved grassland sites.	FA; SWFP; Land-owners; LAs; NPAs; DWT; FWAG
4. Continue to identify important grassland sites and where possible designate as County Wildlife Sites, including those on road verges.	DWT; DBRC; Defra; NE; LAs; NPAs
5. Increase the extent of low intensity meadow and pasture land (particularly where this can link or buffer existing sites) by identifying potential sites and targeting management regimes through agri-environment schemes or other appropriate funding sources and advice.	Defra ;DWT; FWAG; LAs; NPAs; CCMS; RSPB
6. Provide advice to landowners on the importance and management of unimproved grassland especially in major concentrations in the county (e.g. Teignbridge, South Hams, Exmoor fringe and East Devon coast). Use publications, opportunities for training and demonstration sites of 'best practice'.	Defra; DWT; FWAG; NPAs; CCMS; RSPB; NFU
7. Monitor flower-rich grasslands across Devon using data from targeted surveys, agri-environment schemes, as well as remote monitoring e.g. aerial photography.	DBRC; All
8. Promote increased public awareness of flower-rich meadows and pastures by the use of open days, interpretation and appropriate access to help them appreciate the habitat and understand about its management, protection and enhancement.	DWT; NE; CCMS; NPAs; NT; Defra; FWAG; RSPB

Flower-rich Meadow & Pasture Action Plan Champion: not currently assigned

Abbreviations used in text and table

ADAS	Agricultural Development and Advisory Service
BAP	Biodiversity Action Plan
CCMS	Coast and Countryside Management Services of Local Authorities
CS	Countryside Stewardship
DBRC	Devon Biodiversity Records Centre
DCC	Devon County Council
DEFRA	Department of Environment Food and Rural Affairs
DNPA	Dartmoor National Park Authority
DWT	Devon Wildlife Trust
ENPA	Exmoor National Park Authority
FA	Forestry Authority
FWAG	Farming and Wildlife Advisory Group
HA	Highways Agency

IGER	Institute of Grassland and Environmental Research
LAs	Local Authorities
NE	Natural England
NFU	National Farmers Union
NPAs	National Park Authorities
NT	National Trust
RSPB	Royal Society for the Protection of Birds
SSSI	Site of Special Scientific Interest
SWFP	South West Forest Project

Discontinued body referred to in text:

MAFF	Ministry of Agriculture, Fisheries and Food