

**UK Biodiversity Group
Priority Species**

Reed bunting
Skylark
Great yellow bumblebee
Marsh fritillary
Four spotted moth
Striped lychnis moth
A bee fly, *Bombylius discolor*
Hornet robber fly
Mosses, *Weissia multcapsularis*,
W. rostellata, *W. squarrosa*
Creeping marshwort
True fox sedge

**UK Biodiversity Group - Species
of Conservation Concern**

Curlew
Golden plover
Jack snipe
Lapwing
Redshank
Snipe
Yellow wagtail
Forester moth
Marbled clover moth
A millipede, *Polydesmus coriaceus*
Wax cup fungi
Fen violet

Local Character Species

Adder's Tongue
Green-winged orchid
Meadow saxifrage
Narrow-leaved water-dropwort
Pepper saxifrage
Snakeshead fritillary

LOWLAND MEADOWS AND FLOODPLAIN GRAZING MARSH IN OXFORDSHIRE

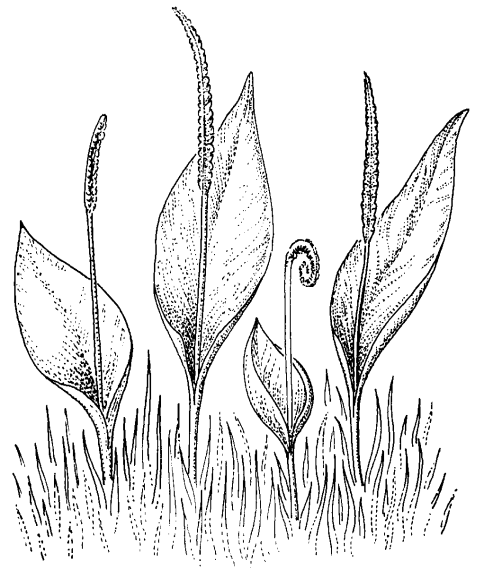
1. INTRODUCTION

Lowland Meadows and Floodplain Grazing Marsh are found on Oxfordshire's clays and alluvial soils. The best areas for wildlife remain where there has been a history of traditional agricultural management consisting of combinations of hay cutting and grazing. Such grasslands often received a light dressing of manure or were fertilised by the floodwaters of the county's rivers.

These traditional meadows and pastures are characteristically rich in flowering plants and provide breeding and wintering habitat for ground-nesting birds such as the reed bunting and snipe.

The UK Biodiversity Action Plans (1995 and 1999) go on to define priority habitats (those of greatest conservation value) within the broad classifications given above. Floodplain Grazing Marsh is viewed as a priority habitat in its own right. It tends to be a mixture of wet grassland, wetland and other grassland types including lowland meadows. The other priority habitat that occurs in Oxfordshire is Lowland Meadows.

The relationship between these two priority habitats and the broad classification is given in Table 1 overleaf.



| UK BAP Priority habitat | Specific habitat | Definition |
|---|--------------------------------------|--|
| Coastal and Floodplain Grazing Marsh | - | Mosaic of grassland and wetland bounded by managed ditches. The grassland can range from wet grassland (NVC communities MG9 and MG10), inundation grasslands such as NVC community MG13, to improved grassland (NVC community MG6) and may include lowland meadow grassland types. |
| Lowland meadows | Seasonally flooded neutral grassland | Unimproved or semi-improved hay meadows or pasture in the floodplain. NVC communities MG4 and MG8. |
| | Dry neutral grassland | Unimproved or semi-improved hay meadows or pasture within and outside the floodplain that tend not to be flooded in the winter. NVC community MG5 |
| | Rough grassland | NVC community MG1. Grassland dominated by false oat grass, which occurs anywhere where management is relaxed or sporadic. It is the principal community on road verges. |
| | Wet grassland | Wet grassland (NVC communities MG9 and MG10) is found in a number of sites outside grazing marsh |

Table 1: Relationship between broad classification and priority habitats

Broad habitat classifications covered by this plan

The UK Biodiversity Steering Group report (1995) identifies the following broad habitat categories covered in this plan:

Floodplain grazing marsh – Improved, periodically inundated pasture or meadow with ditches, which maintain the water levels, containing brackish, or fresh water. Almost all areas are grazed and some are cut for hay or silage.

Lowland Meadows – Semi-improved grasslands on circumneutral soils. This includes a range of hay meadows or pasture on dry ground (MG5 *Cynosurus-Centaurea* grassland) and inundated or waterlogged grassland (MG4 *Alopecurus-Sanguisorba* flood meadow and MG8 *Cynosurus-Caltha* flood pasture).

There can be overlap between these two categories, but grazing marsh is considered as composed of a mosaic of grassland and wetland habitats bounded by managed ditches.

Redshank *Tringa totanus*

Three further useful definitions are:

Hay meadow -

Neutral grassland that is cut for hay in the summer and then grazed in autumn.

Pasture -

Neutral grassland that is grazed lightly through the summer, but is not cut for hay.

Improved grassland -

Land that has been agriculturally improved by applications of fertiliser and/or re-sowing (the biodiversity value of improved grassland is addressed in the farmland habitat action plan).



2. CURRENT STATUS

2.1 Floodplain Grazing Marsh

Otmoor has the most extensive areas of grazing marsh. A large area of Otmoor has been purchased by the RSPB, where they are currently restoring about 170ha of wet grassland and reedbed (plus 5.5 ha of neutral dry grassland outside the ditches).

The other grazing marsh site is the Banbury Ornithological Society's Bicester Wetland Reserve. This was specially created with the assistance of, and on land owned by, Thames Water Utilities Limited.

Port Meadow once had its own ditch system but this is no longer operable although some 16ha of inundation grassland (MG13) occur in the lowest part of the pasture. It is notable for its populations of creeping marshwort which already has its own species action plan.

Water meadows (which utilised elaborate systems of ducts and sluices) were once a feature of some limestone valleys, particularly the Windrush and Evenlode in the county. However, they had all ceased to function by the mid-1980s (Everett *et al.*, 1997) with the exception of one species-poor site on the River Evenlode (SP440144) (Alison W. McDonald, pers. comm.).

The UK Biodiversity Steering Group (1995) estimates a loss of approximately 40 – 60% of grazing marsh in the last 60 years. The current estimated extent of grazing marsh in the UK is 300,000ha although only 10,000ha are thought to be unimproved with diverse communities of native plant species. Oxfordshire currently holds around 200 ha of unimproved grazing marsh at Otmoor, some of which is owned by the MOD and some of which is under restoration by the RSPB.

2.2 Lowland Meadows

It is estimated that the extent of neutral grasslands in the UK has declined dramatically, with a loss of 97% of semi-natural sites between 1938 and 1984 and subsequent declines of between 2 and 10% per annum. Species-rich neutral grasslands now cover significantly less than 15,000ha in the UK and approximately 10,000ha in England (UK Biodiversity Steering Group, 1995). Appendix 1 gives details of Oxfordshire's known grassland sites. At around 1000ha, this represents more than 10% of England's neutral grassland resource.

2.2.1 Lowland meadows – seasonally flooded

Many of the richest wildlife sites occur on seasonally flooded land within the floodplain.

These sites are often characterised by the presence of the MG4 grassland community and such species as snakeshead fritillary, greater burnet or narrow-leaved water-dropwort.

This type of grassland usually occurs in a mosaic of habitats with MG5, MG1 and occasionally, MG13. Small patches of MG8 can occur on poorly-drained, calcareous clays within grazed meadows, particularly along the Cherwell (Killick *et al*, 1999).

Most large Oxfordshire sites are designated as SSSI or NNR. Examples include Chimney Meadows NNR or the Lammas meadows at Pixey and Yarnton Meads SSSI. Wolvercote Meadow and Port Meadow; Pixey and Yarnton; and Cassington Meadows are all part of the Oxford Meadows candidate Special Area for Conservation (cSAC). If confirmed by the European Commission, these sites will receive a high degree of protection, both in relation to planning control and to management. A full list and maps of known sites with some degree of protection are given in Appendix I and 2.

| Site name | Area of MG4 (ha) |
|-------------------------|------------------|
| Arncott Bridge Meadows | 2 |
| Cassington Meadow | 4 |
| Chimney Meadow | c.27 |
| Ducklington Mead | 5 |
| Langley's Lane Meadow | 1 |
| New Marston Meadows | c.10 |
| Pixey and Yarnton Meads | 85 |
| Wolvercote Meadows | 9 |
| Total | c.143 ha |

Table 2 Estimated reserves of MG4 grassland on SSSIs

Less than 1500 ha of MG4 *Alopecurus-Sanguisorba* meadow now remain in the UK (UK Biodiversity Steering Group, 1999), found mainly east and south of a line between the Severn Estuary and the Yorkshire Ouse. Precise estimates of the Oxfordshire resource are difficult to

provide. There is a total of 810-850 ha of seasonally flooded lowland meadow protected as NNR (49.7ha), SSSI (570-590ha), CWS (187–200ha) or other Alert map (7ha) sites. Not all of this is MG4 grassland as this community, where it occurs, usually forms only one component of the grassland mosaic on these sites.

In Oxfordshire, only 25% of the MG4 sites are greater than 10ha, and Pixey and Yarnton Meads constitute over 50% of the total area (Jefferson, 1997). English Nature estimates the reserves of MG4 on SSSIs to be as shown in Table 2 (Graham Steven, pers. comm.).

Many smaller sites have been neglected or partially improved for agriculture and are not prime examples of MG4 habitat (and for some sites there is no information on the current quality). Nonetheless, it is quite clear that Oxfordshire provides a significant proportion of the UK resource for this priority habitat.

2.2.2 Lowland meadows – dry

Very little traditionally managed, unimproved neutral grassland exists outside the floodplain in Oxfordshire. Appendix 1 shows that the total area of protected, dry, neutral grassland (MG5 *Cynosurus-Centaurea meadow*) may be less than 100ha. This community may, however, also be found on many of the floodplain sites.

The UK Biodiversity Steering Group (1999) estimates that between 5000ha and 10,000ha of MG5 grassland remains in England and Wales. The Oxfordshire resource may only contribute a few hundred hectares. Banks along some of the northern Cotswold Valleys, such as the Glyme and Swere, support the more acidic type of MG5 grassland. This is also found on the more acidic soils in the Chilterns at Crowsley Park (along with areas of acid grassland).

2.2.3 Rough grassland

Another considerable but unquantified neutral grassland reserve exists on road verges and in public parks. In terms of their vegetation, these tend to be species poor, but despite lacking rarities, they often hold populations of typical neutral grassland plants such as bird's foot trefoil

or selfheal. They are also valuable havens for small mammals – it is with this group that they make the greatest contribution to the national biodiversity plans. In an intensive agricultural landscape, they provide an important wildlife refuge and source for future re-colonisation of surrounding land. They are usually maintained by periodic cutting and this can have a major effect on plants, insects and mammals.

2.3 Associated species

Appendix 3 gives more details on the status of the UK Biodiversity Action Plan priority species most closely associated with neutral grasslands. A more general summary is given below.

Hay cut or grazing meadows (including those on grazing marsh) on the floodplains are important for breeding waders, particularly snipe, redshank, lapwing and curlew. All four species are now restricted in Oxfordshire to just a few grassland sites although the latter two also breed in other farmland habitats.

Historically, the largest concentrations of these wading birds have been found at Otmoor. Widespread land drainage in the 1960s might well have led to the total loss of breeding waders on the site had it not been for the efforts by, amongst others, DEFRA and English Nature to manage the SSSI on MOD land. Despite these efforts, there were only 5 breeding pairs of snipe, 7 pairs of redshank and 3-4 pairs of curlew (see 5.2A) in 1998. The creation of a major wetland reserve by the RSPB on neighbouring land is likely to prompt a considerable recovery. In 1999, while still under development, the reserve attracted 38 pairs of breeding lapwing and 7-8 pairs of redshank.

In 1998, on land outside Otmoor, 5 pairs of redshank bred at three other sites. At least 5 pairs of curlew bred along the Upper Thames valleys, 3-4 pairs in the Ock valley and scattered pairs in the Cherwell valley and along the Thame (Royston Scroggs and John Brucker, pers. comm.). These figures do not compare favourably with breeding estimates even as little as ten years ago. The following figures give numbers of breeding pairs (confirmed + probable) for 1985-88: snipe (37 tetrads, 40-50 pairs), redshank (38 tetrads, 30-40

pairs) and lapwing (388 tetrads), (Brucker *et al.*, 1992).

Reed buntings were still quite common between 1985 and 88, with an estimate (confirmed + probable) of 293 tetrads containing breeding territories (Brucker *et al.*, 1992). Corncrake was once a common bird of Thames-side meadows, but started its decline at the turn of the Century. The last breeding record is from 1953 (Brucker *et al.*, 1992), although individuals have been heard in 1977 and 1999.

There are only three UK Biodiversity Action Plan vascular plant species that are strongly associated with neutral grasslands. In Oxfordshire, True fox sedge is now found only at Otmoor and Blackthorn. Creeping Marshwort is restricted to Port Meadow and Binsey Green and has been introduced at two sites, at one of which it has survived. Fen violet was recently rediscovered at Otmoor, following scrub clearance. There have been major declines in the local character species that are typical of neutral grasslands. Druce (1927) recorded the green-winged orchid as the county's most common orchid. The species is Nationally Scarce (Stewart *et al.*, 1994) and is currently recorded from only 44 tetrads in Oxfordshire, of which many records are probably already out of date (Killick *et al.*, 1998). The following indicative, character species are all recorded as declining by the authors of the flora of Oxfordshire (Killick *et al.*, 1998): snakeshead fritillary (currently 20 tetrads), narrow-leaved water-dropwort (12), meadow saxifrage (51), pepper saxifrage (127) and greater burnet (143). Downy-fruited sedge (*Carex filiformis*) is not listed in the national action plans, but is included in the British Red Data Book (Perring and Farrell, 1983). It is still common on Otmoor (Killick *et al.*, 1998).

Marsh fritillary was last recorded in Oxfordshire at Otmoor in 1994 and at the end of the 1999 season was presumed extinct. There are a few Oxfordshire records for the striped lychnis moth and Oxfordshire is recorded as one of the few counties where this species can still be found. The other priority invertebrates have not been recorded in the county for many years (John Campbell, pers comm.) – full details are given in Appendix 3. The ground beetle, *Badister meridionalis*, is found at

only two sites in England, one of which is Otmoor (Luff, 1998). Many rare, scarce and local invertebrates are not listed in the UK plans, but should benefit from any habitat conservation action.



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