

# Introduction to the Floodplain Hay-meadows of the Thames Valley

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The ancient hay-meadows on lowland floodplains in England carry a stunning and notable flora and fauna. The long history of this remarkable community and its precarious future is of particular interest in the Thames valley where the most extensive tracts survive. Hay-making is a highly productive but also labour intensive form of agriculture, which developed during the Roman and Saxon periods enabling large numbers of cattle and horses to be kept through the winter. At the time of the Domesday book, hay meadows formed some of the most valuable agricultural land. Flower-rich hay-meadows are however not as productive as re-seeded permanent grassland and these too generally gave way in the later 20<sup>th</sup> century to short term leys which are cut for silage from May onwards. Substantial areas of traditional hay-meadow have survived on the floodplain partly because of the difficulty of getting machinery onto wet ground, but especially where ancient common grazing rights have impeded agricultural 'improvement'. Now that grazing land is also of low value, hay-meadows have ceased to be economic to manage the in the traditional way, that is with a hay cut in late June or early July and aftermath grazing by cattle in late summer and autumn.

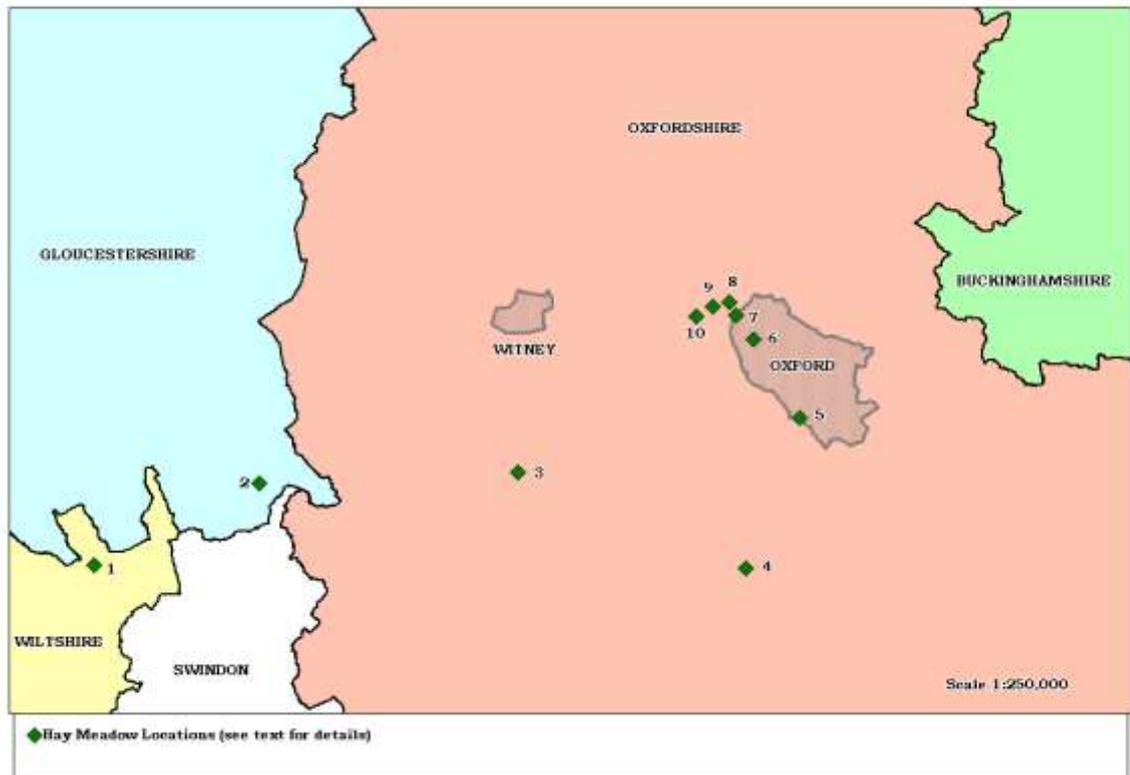
In June hay-meadows provide one of the great floral displays of this country, with a rich mixture of tall herbs including Great Burnet, Pepper Saxifrage, Devil's-bit Scabious, Field Buttercup, Yellow Rattle and Red Clover, with Meadowsweet, Tubular Water-dropwort and Ragged Robin in the wetter ground. More restricted plants include Early Marsh-orchid and Common Spotted-orchid, Saw-wort, and an endemic Dandelion (*Taraxacum tamesense*). Botanically floodplain hay-meadows are classified as mesotrophic grassland, MG4 named after two characteristic species – Meadow Foxtail and Great Burnet (Rodwell 1992). This is now a priority habitat for conservation. The significance of the Thames meadows has been recognized in the designation of the largest group as a Special Area of Conservation, one as a National Nature Reserve and many other sites as SSSIs.

Birds such as curlew and lapwing, once common in the lowland floodplains, have declined dramatically, prompting government action through grants for appropriate management in the Upper Thames Tributaries Environmentally Sensitive Area and, latterly, through Defra's Higher Level Stewardship grants. Hay-meadows have also been bought by the National Trust and the Local Wildlife Trust, who have recently launched a partnership with the RSPB for Wetland Restoration in the River Ray catchment, which involves hay meadows and also pasture.

In 2007 the Rare Plants Group of the Ashmolean Natural History Society of Oxfordshire held a three day workshop to discover in more detail the history, hydrology, natural history and conservation of hay-meadows and also to visit prime examples and sites where they are being restored. The workshop was aimed at a wide range of people – landowners, conservationists, historians and government employees, as well as naturalists. Discussion sessions at the end of each day ranged widely over historical, current and long term issues. The workshop was administered,

on a volunteer basis, by Rick Saunders, who had been inspired by our previous workshop on the Valley Fens of Oxfordshire. We are also most grateful to the John Krebs Field Station of the University of Oxford, Farm Animal Initiatives and the Local Wildlife Trust, BBOWT, as well as to the speakers and participants.

The workshop started in Wiltshire on 13<sup>th</sup> June aptly in the Thames Hall at Cricklade with a masterly overview of the conservation issues of hay-meadows by Richard Jefferson, Senior Specialist in Grassland Ecology at Natural England. We then proceeded to the historical management and the effects of different grassland management regimes on hay-meadow contrasted with permanent pasture by Dr Alison McDonald, in particular the custom of multiple owners drawing lots (locally in the form of wooden balls) to determine which area of hay was to be taken by which owner each year. Then we heard from Robert Wolstenholme of Natural England about the management of North Meadow Cricklade SSSI and particularly the survival of a Medieval Court Leet which still controls the grazing of the North Meadow, though under very difficult circumstances. These meadows are most notable earlier in the year for the display of Snake's-head Fritillaries which cycle in frequency, debatably following weather events. It is at Cricklade (Figure 1) that David Gowing, Professor of Botany at the Open University and Visiting Fellow at Cranfield University has conducted a long term study of the effects of the hydrology on the different plant communities with MG4 becoming more extensive following flood events, and being replaced by MG5 Crested Dog's-tail – Common Knapweed, after a series of dry years. Despite gentle rain we then visited North Meadow adjacent to the young river Thames where his research team showed us the patterns of vegetation associated with local impounding of water, or free drainage of the ground. The role of flood water in bringing nutrients, especially phosphate to the plants was a particular issue for discussion.



**Figure 1: Map of central Oxfordshire showing the locations of sites mentioned in the text. They all lie on the Thames floodplain. Map supplied by the Thames Valley Environment Records Centre.**

1. North Meadow Cricklade SSSI
2. Claydon Pike excavation
3. Chimney Meadows NNR and BBOWT Reserve
4. Drayton excavation
5. Iffley Meadows SSSI BBOWT Reserve
6. Port Meadow, part of the Oxford Meadows SAC
7. Picksey Mead, part of the Oxford Meadows SAC
8. Oxy Mead, part of the Oxford Meadows SAC
9. West Mead Yarnton part of the Oxford Meadows SAC
10. Somerford Mead, restored meadow near Wytham

The second day (23<sup>rd</sup> June) began with an account of the archaeological evidence that has been painstakingly gathered by Mark Robinson, Professor of Environmental Archaeology at Oxford University, for the composition of floodplain grasslands since the last glaciation. While pollen is not always sufficiently specific, and waterlogged seed material is rare, suites of snail species can indicate the grassland management, and beetle fauna composition also holds a key to changing features of grassland on the floodplain. Dr Alison McDonald then described the long term restoration and grazing experiment she has been conducting since 1985 at Somerford Mead, Wytham. The presence and type of grazing of the aftermath have been shown to affect both the sward structure and composition, in a complex way that has depended on weather patterns. The same plots have been used by Dr Ben Woodcock to investigate how the beetle assemblages have developed and also been affected by the management. He drew lessons for the restoration of the full insect fauna typical of ancient meadows.

Our visit to see the Somerford Mead plots was facilitated by a tractor ride laid on by Farm Animal Initiatives (Figure 2), who manage the land as part of their interest in animal-friendly farming. The seed source for the Somerford plots was Yarnton Mead, part of the Oxford Meadows SAC, on the other side of the Thames, so we then visited this site, where marker stones still show the strips of land where the hay associated with each lot ball should be taken.



**Figure 2: The Farm Animal Initiatives tractor about to take the workshop to Somerford Mead, Wytham near Oxford**

The final session was held on 30<sup>th</sup> June at Chimney in West Oxfordshire where Dr Kerry Lock, Reserve Manager for BBOWT, the Local Wildlife Trust, described the extensive meadow restoration carried out in 2004 using green hay from the adjacent NNR. Detailed monitoring has shown a rapid development from annuals towards an MG4 sward. The return of ground nesting birds such as curlew and lapwing to the meadows is a major objective and Drew McVey told us about RSPB initiatives to raise the numbers of ground nesting birds which use the hay meadows. Then we visited both the Chimney Meadows NNR, in its loop of the Thames, and several of the former arable fields which have been restored with considerable success, and heard about problems arising from flooding and impounding of the water within a bank originally built to keep water off the meadows. Finally, the future of hay meadows was addressed by Anne Newson, the local Natural England officer, who outlined the various agri-environment schemes under which grant aid is available to promote traditional and appropriate management of hay meadows. This was followed by extended discussion, particularly focussing on conservation issues: the current lack of financial value in cattle grazing, increased concern over flood control and the role of local people in the long term prospects for these meadows.

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