

Hay Meadows and other grasslands on London Clay

Photo: Grass Vetchling



Photo: Meadow Foxtail



Hay meadows are floristically rich, semi-natural grasslands. They were once a typical habitat of lowland farming communities, providing both hay and green grazing for livestock. Hay meadows may initially have formed from the first clearings in woodland, combining a flora of woodland glades with that of grassland plants. Floristic diversity was high as no artificial fertilisers were applied, thus allowing a wide range of plants to co-exist rather than be out-competed by a few dominants. Nor were herbicides used. Hay meadows also supported a diverse range of dependent wildlife.

The hay meadows of Fryent Country Park set within hedged fields are part of the farmed landscape that for centuries covered much of Brent and indeed of north-west London. Here the underlying soil is London Clay, a soil of about neutral pH, prone to waterlogging in winter and drying-out in summer. The soil was difficult to cultivate but readily suitable for harvesting hay from naturally growing grassland and with grazing by livestock at other times of the year.

While cultivation of the soils seldom resulted in a viable crop, there were a few short-term attempts over the centuries, including during the Second World War and in the late 1960s/early 1970s. We can assume that the ploughing destroyed some of the floristic richness though a few remnants survived in field corners and the buried seed-bank to enable the meadows to re-establish. During recent years the conservation focus has encouraged the restoration by enabling good management of the hay meadows.

Historically, the traditional Middlesex management was of hay harvesting in the summer, followed by cattle grazing of the aftermath (new growth). To avoid

poaching of the ground in the autumn, cattle would have been removed before the ground became wet. In the absence of grazing, hay harvesting, while not perfect, maintains the botanical interest of the grasslands, provides for wildlife, maintains the meadow landscape and provides a crop. In some situations, an aftermath cut, in the late summer, mimics the effect of grazing and helps to reduce the dominance of some grasses and controls Creeping Thistle.

The meadows of Fryent Country Park have a wide range of plant species, both grasses and forbs ('broadleaved flowering plants'). Frequent species include Meadow Brome, Meadow Vetchling, other vetches, clovers and buttercups. If hay harvesting is disrupted, the False Oat-grass tends to dominate giving rise to an MG1 type grassland of the National Vegetation Classification. But with effective hay harvesting the vegetation is nearer to the more varied MG5 community. In the north of the Country Park are remnants of the flood-plain meadow MG4 community with Great Burnet in the fields of Half Yards Meade, Honey Slough East, Honey Slough West, Lyon field and Lower Hydes East. Some remnant MG4 is apparent in the northern part of Goldring Strip. Masons Field has been the focus of a restoration project, starting with the grassland of an abandoned sports field and diversified with a mix of wildflower seed and plugs.

Much is known about the flora of the Fryent Country Park meadows due to annual monitoring. The survey is also an opportunity to learn to identify grasses and wildflowers.

This section of the management plan, also includes other grasslands of Fryent Country Park including the mown paths alongside field edges and across fields, rough grassland, grassland on the mounds alongside Fryent Way, horse grazing and mown grasslands. The acid grassland on Barn Hill and grassland as part of scrub habitats are considered under those respective sections.

Techniques

Hay harvesting

The cutting and harvesting of hay meadows. Hay harvesting removes much of the above-ground vegetation as the hay crop. These plants are adapted to this process, as they can spread by seed (if shed at or before harvest) and by their roots. Harvesting usually commences at the start of July, at which time the plants have grown and the ground is drier for machinery. As the summer progresses, hay gradually loses its nutritional value and palatability. However, later in the summer, the hay has less water content and may dry quicker. At harvesting, hay is first cut and then left to dry for a few days, possibly being turned during the process. When dry, it is raked into windrows and then harvested into bales, for collection and transport. Hay harvesting should be by disc cutter rather than a flail (flail causes more damage to the fauna).

A variant of hay harvesting is **haylage** which has a slightly higher moisture content, which means that it can be harvested sooner after the cut, but requires wrapping or the exclusion of air in storage to prevent decomposition. Silage is rarely harvested from Fryent Country Park - the vegetation is harvested without drying, but requires clamping or other storage methods to prevent decomposition.

If a harvest is missed, coarser grasses predominate, and then thistles, brambles and scrub woodland.

Aftermath cut

A second cut of hay meadows, usually at least six weeks after the main harvest, aimed at maintaining the condition of the meadow sward. It is particularly effective at reducing the abundance of Creeping Thistle; and may also reduce False Oat-grass. This is sometimes called **topping** particularly where control of Creeping Thistle is the priority. A second harvest involves harvesting the aftermath material.

Harrowing

Drawing a tractor-mounted harrow through the meadow, usually while the grass is short, with the aim of combing out some of the matt of thatch at just above ground level. The thatch is composed of grass and other dead vegetation that has not decomposed; and which physically smothers the germination of seedlings and of new vegetative growth. Breaking up the matt encourages a more species-rich sward. At Fryent Country Park this is best done in the early autumn, after the aftermath cut.

Flail cut

In years when hay harvesting is not practical, the meadows can be cut, usually with a tractor-mounted flail. Research shows that the while the species richness the following year is less than if the meadow had been harvested, flail cutting is preferable to no cutting. Rotary cutting equipment is faster and less damaging to invertebrates than use of flail equipment. On a smaller scale the same effect can be achieved with hand tools by the use of **scything** or **slashing**.

Planting of seeds, plugs and bulbs

In some situations, the diversity of meadows can be improved by planting of species that are naturally associated with the grasslands but have been lost locally in the past. To be successful, seeds need to be planted into bare soil or disturbed

meadow where at least fifty percent of the vegetation has been cleared to enable good contact with the ground. Seed scattered onto grass is unlikely to survive. Plant plugs, perennial species pre-grown in a plug of soil can be transplanted directly into the meadow. This is best done with plug planting tools to speed-up the work. Similarly, bulbs can be planted, at the correct depth. Tools can be used, or a three-sided flap of turf and soil can be hinged over, the bulbs planted and the grassland returned on the hinge. All planting stock needs to be of organic origin or cleared for use via a Derogation.

Green hay is used as a seed source where particular species occur in a meadow that could be introduced to an area of disturbed ground in another meadow. The hay is gathered immediately after harvesting, moved to the receptor site and spread out to enable the seed to drop and make contact with the soil.

Creeping Thistle control

Creeping Thistle is a significant weed in the hay - as it is prickly to livestock eating the harvested hay. It spreads in meadows mainly via the roots. Control is primarily by good management - ensuring that the hay meadows have a complete sward in which the grassland plants can out-compete Creeping Thistle. Monitoring of the meadows in June enables the identification of meadows where Creeping Thistle is increasing. Aftermath cuts, following the main harvest, are effective at reducing the frequency of Creeping Thistle. Two or three cuts per year (including the hay cut) are effective.

Similar control is also effective for the control of other weed species including Common Ragwort and Blackthorn.

Within infestations, the smallest colonies should be tackled first and then progressively larger infestations, (Moody, M.E. and Mack, R.N. 1988. Controlling the spread of plant invasion: the importance of nascent foci. *Journal of Applied Ecology*, 25: 1009-21).

Creeping Thistle is not a problem in habitats other than the meadows, and is valuable for wildlife. Spread by seed is probably insignificant in meadows.

Ragwort Pulling

The Common Ragwort can be poisonous to livestock if eaten as part of hay. There is national legislation in place, the Ragwort Control Act 2003. Other species of Ragwort also occur in the meadows, particularly the Hoary Ragwort. Ragwort is best controlled as for Creeping Thistle. However, because of the toxicity of the plants, these may be pulled prior to harvest, though pulling does not kill the root system. Pulling should be done with gloved hands, avoiding strain on the back. A

'Lazy-dog' tool for Ragwort pulling is available for Group use. The pulled material should be collected and removed from the meadow (for example, to a hedgerow edge).

Ragwort is not a problem in habitats other than the meadows; and are valuable for wildlife. Note that the legislation is concerned with 'control' - not eradication of the plant.

Meadow management tasks

Task	Notes
Hay harvesting: arrange annual harvesting contract. Start to arrange contract in mid-January to February, as the process takes time and contractors need to plan for the summer.	Brent
Specify that all meadows should be cut, and align cutting dates with the Countryside Stewardship agreement and Cross Compliance requirements. Cutting and harvesting should commence on or after 1 st July. But do not specify any later dates than necessary as cutting late reduces opportunities for good weather and reduces the value of the hay crop. Earlier cutting also helps to control Thistles and False Oat-grass.	
Monitoring: Hay meadows and management: the flora of hay meadows is monitored annually and data is available on over 200 species. The effects of three grassland management treatments (hay harvesting, flail cutting and no cutting) have been compared. Continue monitoring in, at least a random sample of meadows; arrange data entry and dissemination. Provide feedback for the control of Creeping Thistle, Blackthorn, and Ragwort. Enter the meadow management records in the meadow management spreadsheet.	
Harvesting: Pre-harvesting liaison: arrange copies of keys, brief Parks personnel, liaison with contractor etc. Maintain liaison with the contractor and others throughout the harvest. Check to ensure on tidying any loose bales or other issues.	Brent
Hay Watch: Brief Parks, BHCG and others. Having walkers on site at times during the evenings, late afternoons and weekends has been found to be a good deterrence.	
Where or when it is not practical to harvest the hay annually, the aim is to maintain the condition as near as practical to the meadow habitat. Cutting achieves the same as the first stage of hay meadow management, but with some reduction of species richness due to the accumulation of a matt of thatch.	

Aftermath cutting / or harrowing. Arrange, depending upon the seasonality of the completion of hay harvesting, the aftermath growth, ground conditions and the Countryside Stewardship agreement conditions. Natural England emphasise the priority as increasing species richness and the reduction of the thatch matt as also helping to increase species richness. Aftermath cutting is also effective at reducing thistles etc.	
Creeping Thistle: Aftermath cutting is also effective at reducing thistles etc. See the boxes on Creeping Thistle control and on Aftermath cutting.	
Ragwort: ensure compliance with the Ragwort Control Act 2003 (note 'control' in the meadows; not eradication).	
Masons Field: maintain the meadow and consider additional cuts over part (particularly the east) or the whole of the field to reduce the dominance of coarser species and to improve the species richness.	
Organic Standards: The hay meadows and other produce of Fryent Country Park are certified to the Soil Association Organic Standard. That means that the hay is certified as Organic. The producer number is G2194. All operations, across the whole of the Country Park are maintained to the Organic Standards.	
Organic Certification: Administer all farm records particularly those of harvested hay meadows, timber production and fruit. Arrange the annual and any other Organic inspections.	Brent
Countryside Stewardship agreement: A Countryside Stewardship agreement with Natural England covers the hay meadows at Fryent Country Park. Comply with the requirements for the meadow management. Aim to achieve improved species richness.	
Countryside Stewardship agreement: Administration: Ensure administration of the Countryside Stewardship agreement including annual returns (March-early May), and other records.	Brent
Basic Payment Scheme: The Basic Payment Scheme covers the permanent hay meadows of Fryent Country Park. There are additional requirements relating to Cross-Compliance (including hedgerows, conservation of soil, prevention of pollutant run-offs etc.). Comply with the requirements for the meadow management.	
Basic Payment Scheme: Administration: Ensure administration of the Basic Payment Scheme Countryside Stewardship agreement including annual returns (March-early May), and other records.	Brent

Management of other grasslands on London Clay

Task	Notes
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Field Margins and mown paths across fields: Cut grassland paths at the field margins are managed throughout the Country Park to provide footpaths (c. 14-20 km), short grassland habitats, for Thistle and Blackthorn control and to maintain the field landscape. Note the importance of keeping the field edge paths alongside the field edge - Blackthorn suckers will grow into any uncut area at the field edges.	Brent
Roadside Mounds: See the Management Plan section on the Mounds Orchard for details of grassland management.	
Rough grassland is an important habitat for invertebrate species including the Skipper butterflies. Conserve where possible, for example, on footpath edges, coppice areas, in woodland, in scrub, orchards, and on pond edges.	
Saltcroft glade: Conserve and restore the grassland: aim for at least one cut in each year; preferably two. Remove herbage and scrub to maintain grassland species. Brent Council (contractors) cut in the autumn. Consider extending the glade eastwards to reopen the glade containing Betony and create rough grassland within the open areas of the nearby scrub.	Check also that Brent undertakes an autumn cut
Horse grazing: Horses graze in two paddocks on the east side of the Country Park. The grazed grassland gives the appearance of over-grazing, being heavily poached in winter and often dry with weed species in the summer, in both seasons with a high proportion of bare ground. Possible solutions could involve matching the numbers of horses to the field sizes, sub-division of the fields to enable better control of the grazing, and summer topping of weed plants.	Brent Council Property Services team

More information

See also the Management Plan sections on 'Acid grassland', 'Scrub', 'Orchards' and 'Hedgerows'.

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