

FRYENT COUNTRY PARK HAY MEADOW SURVEY 2011

Introduction: Hay meadows at Fryent Country Park provide approximately 60 hectares of habitat within about thirty hedged fields. This report is a summary of the 2011 hay meadow survey.

Survey information and knowledge informs management decisions, and provides feedback on the effect of our Environmental Stewardship agreement; and actions towards the Lowland Meadows Biodiversity Action Plan. Although this summary is collated after the harvest, initial data from the hay meadow survey is available by early July and is used to plan the management of the meadows during the late summer and autumn. Weekly conservation projects throughout the year often contribute to the maintenance of the meadows.

Environmental Stewardship: An Environmental Stewardship agreement was awarded by Natural England in February 2008. The meadows in the Fryent Country Park scheme are under two management prescriptions. The majority (HK15: 'semi-improved') of the meadows are to be hay harvested, not before 1 July, with ten per cent of each meadow left uncut for invertebrates etc. The uncut areas are rotated each year. The remaining meadows (HK7: 'species-rich, semi-natural') of Lower Hydes East, Honey Slough West, Lyon, Honey Slough East, and Half Yards Meade are in a higher prescription aimed at conserving a botanically rich meadow community. These meadows have their whole areas harvested; and not before 15 July. In addition, we are aiming to introduce some organically-grown plugs into Honey Slough East. For both prescriptions further cutting and harrowing may follow at other times of the year, aimed at reducing accumulated thatch / matt, and increasing species richness.

Monitoring team: Barn Hill Conservation Group (BHCG) organized the monitoring of the meadows, with the surveying undertaken by Simon Mercer; and Leslie Williams of Brent Council. Simon also updates the annual Access database.

Monitoring: Meadows were randomly selected, though the project aims to survey all of the five 'species-rich, semi-natural' fields each year. At least half of the hay meadows are surveyed each year. Nineteen of the 23 survey meadows were surveyed in 2011.

Species richness: Species richness is the number of species per unit area. It also reflects the combined changes in constituent changes in species frequencies. The average number of species per square metre was 10.8 in 2011; a slight increase on 2010 which in turn had the highest species richness since monitoring commenced in 1985. This compares with 7.4 in 2008 and 2009, before the effects of the restoration of hay harvesting. Of the meadows surveyed in 2011, the species richness ranged from 8.5 at Oldefielde Grove to 13.7 at Honey Slough East. Variations of management treatment were applied to groups of fields in 2010, though small sample sizes make valid comparison difficult. There was however some evidence, on a like-for-like basis, that the application of an aftermath (second) harvest slightly increased the species richness in 2011 compared with meadows that received the main harvest only.

Thatch: An objective of the Environmental Stewardship agreement is to reduce the quantity of thatch (matt / undecomposed vegetative material at ground level) which is considered to reduce the species richness by physically smothering and otherwise reducing the emergence of some species. The Environmental Stewardship target is that thatch should not exceed 10% of ground cover. Thatch is difficult to measure: the material is visually obscured by the growing sward and canopy above; and at ground level needs to be distinguished from the similarly coloured current years' growth much of which may be growing horizontally. Estimates were made in each quadrat. The average cover of thatch in 2011 was estimated as 48%, an increase from the 40% of 2010, though lower than the 77% in 2008 before hay harvesting was re-started. The 2010 figure could have benefited from the harrowing of meadows in late 2009.

Species: Details of the occurrence and frequency of each species are held in a database which includes data on over 200 species that have been recorded in the meadows since 1985. The following covers only a few species. Species are listed with frequencies based on the proportion of one-metre square quadrats in which the species was recorded using 10 quadrats in each meadow surveyed. Some species have recently been afforded new specific, and in some cases also new generic names, as listed in Stace (2010. *New Flora of the British Isles*. Third Edition. Cambridge University Press). Currently, this project is retaining the old names in the database and in this report. We also note that Cope, T. and Gray, A. (2009. *Grasses of the British Isles*. BSBI.) now consider that Meadow Brome (*Bromus commutatus*) and Smooth Brome (*Bromus racemosus*) are the same species and have amalgamated these are under the name of *Bromus racemosus*. Whilst we agree that the separation of these two 'species' has caused considerable problems in the past, we are retaining the separation in the database. Amalgamation of data would lead to the loss of information. In the absence of data on the genetic variation of the populations at the Country Park, the large majority of plants at Fryent Country Park are typically '*B. commutatus*' in form, and only plants that have been identified as morphologically of the '*B. racemosus*' form have been recorded as *B. racemosus*.

Yorkshire Fog (*Holcus lanatus*) was the most frequent grass occurring in 97% of quadrats. False Oat Grass (*Arrhenatherum elatius*) was recorded at a frequency of 87%, similar to that in 2010 but lower than the peak frequencies recorded during the years of non-harvesting and when it appeared structurally dominant in the sward. Couch was recorded at a frequency of 65%, Rough Meadow-grass (*Poa trivialis*) at 63%; and Bent grasses (*Agrostis spp.*) at 54%. Meadow Brome (*Bromus commutatus*) which has a preference for annual hay harvesting increased to 62%, the highest since monitoring commenced; and an increase from 15% in 2008. Perennial Rye Grass (*Lolium perenne*) increased to 32%, Cocksfoot (*Dactylis glomerata*) declined to 29%, compared with a frequency of 47% in 2010, and Tall Fescue (*Festuca arundinacea*) was recorded in four meadows, an increase compared with recent years.

Of the forbs, Meadow Buttercup (*Ranunculus acris*) had a frequency of 71%, the highest since 2001, whereas Creeping Buttercup (*R. repens*) declined to 13%. Meadow Vetchling (*Lathyrus pratensis*) at 71% was similar to the high frequency achieved in 2010. One species previously un-recorded at Fryent Country Park was Grassy Vetchling (*Lathyrus nissolia*), a plant with leaves and stems that looks superficially like a grass, though with a yellow flower. Cut-leaved Cranesbill (*Geranium dissectum*) at 43% and Common Sorrel (*Rumex acetosa*) at 12%, were each recorded at their highest since monitoring commenced in 1985.

Red Clover (*Trifolium pretense*) at 9% and White Clover (*T. repens*) at 4% were both at their highest frequencies since 2000. Hairy Tare (*Vicia hirsuta*) at 78% was the highest for this species since monitoring commenced in 1985, while Common Vetch (*V. sativa*) at 58% was its highest since 1997. However, Smooth Tare (*V. tetrasperma*) declined to a frequency of 30%.

Great Burnet (*Sanguisorba officinalis*) was recorded at 5%, though the surveyed fields include all of the National Vegetation Classification MG4 meadows in the Park where the species is considered characteristic.

Of the undesirable species, Creeping Thistle (*Cirsium arvense*) at 28% had a similar frequency as in the two previous years. Topping was undertaken in the autumn in an attempt to manage the high frequencies of Creeping Thistle in some meadows. Blackthorn (*Prunus spinosa*), and Common Ragwort (*Senecio jacobaea*) were recorded in a few meadows (where possible Ragwort is pulled with gloved hands and removed from the meadow).

Un-cut areas: A requirement of the Environmental Stewardship agreement is to leave 10% of the HK15 prescription meadows uncut; (with the areas to be rotated each year). This was achieved in 2011. Unfortunately, during the autumn of 2011, a tractor driver mowing paths also cut all of the uncut areas. Leaving areas uncut does lead to a reduction in species richness, though Creeping Thistle may increase. Some invertebrate species may benefit from the uncut areas.

Meadow Brown: Numbers of Meadow Brown butterflies at Fryent Country Park increased in 2011 compared with 2010. However, 2010 was a poor year for the Meadow Brown with the United Kingdom Butterfly Monitoring Scheme reporting the lowest numbers since monitoring commenced in 1976. National figures for 2011 are not yet available. Locally numbers have varied during recent years and there is not yet any apparent correlation with the re-introduction of hay harvesting. The life-cycle of this species is considered to be associated with traditional hay meadow management.

Management: The four events fields of Upper Hydes East, Upper Hydes East East, Richards West and Short Down West were also harvested in August.

Hay Watch: Hay Watch was organized at the time of the harvest. Thank you to those who participated.

Field Management records: The spreadsheet/s on field management have been further expanded and are managed to bring together records and data from historic, geographic, administrative, technical, and management sources into one document to aid data storage and retrieval of information for a variety of uses.

Honey Slough East: Honey Slough East is located between the swathe of meadows with remnant MG4 (Mesotrophic Grassland 4) communities; the other meadows being Half Yards Meade, Lyon, Honey Slough West and Lower Hydes East. Plug planting of Great Burnet and other locally grown material have been used as part of a restoration; and the field has been included within those receiving the HK7 management treatment. In 2011, Honey Slough East had the highest species richness (13.7) of all the meadows survey, with Lower Hydes East achieving 13.6.

Masons Field: Masons Field on the north-east of the Country Park is the subject of a Heritage Lottery Fund award to restore the field. Previously an un-harvested former sports field, was surveyed for the first time and had a species richness of 2.9 species per square metre.

Soil Association Organic Standard: The certification was retained at the annual inspection. Masons Field (the extension to the Country Park), the woodlands and their produce are now certified as organic.

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