

Upland hay meadows

Introduction

Upland hay meadows are confined to areas where non-intensive hay-meadow treatment has been applied in a sub-montane climate. The habitat comprises the single National Vegetation Classification community MG3, *Anthoxanthum odoratum* - *Geranium sylvaticum* grassland and is characterised by a dense growth of grasses and herbaceous dicotyledons up to 60 - 80 cm high. Stands of *Anthoxanthum* - *Geranium* meadow are typically found in isolated fields or groups of fields, where many are still managed as hay meadows, but they are also recorded from river banks, road verges, and in woodland clearings. Most stands of the habitat are less than 2 ha in extent.

This habitat is important mostly for its high plant diversity. There is currently very little information available on invertebrate communities in upland hay meadows. Few Nationally scarce invertebrate species have been recorded from this habitat; hay cutting in mid summer produces such a sudden change of environment that only a limited insect fauna is adapted to thrive under this management.

Limestone Hay Meadow & Wood - Via Gellia Derbyshire

Threats

- **Fragmentation of habitat**

Increased risk of species extinctions in the small remnant areas.

- **Agricultural improvement**

Ploughing, drainage, re-seeding, inorganic fertiliser treatment and slurry application

- **Changing farming practices**

A general shift from hay-making to silage production, with more frequent and often earlier annual cutting

- **Grazing**

Increased grazing intensity and duration, particularly in spring.

- **Nutrient enrichment**

Increased eutrophication as a result of too frequent application of farmyard manure

- **Supplementary feeding**

Increased supplementary stock feeding associated with higher grazing levels leading to enhanced nutrient loadings and localised poaching

- **Neglect**

Agricultural and other management neglect leading to rank over-growth

• Pesticides

Application of herbicides and other pesticides.

The declining economy of upland farming threatens the continuity of traditional land management. Where hay cutting has to be abandoned, in principle there may be alternative management practices which would better assist invertebrate biodiversity.

Habitat Management

Maintain traditional management

Consistent management is especially important for this habitat type; hay cut followed by aftermath grazing is the ideal approach. A nil-inputs regime should be followed to prevent impoverishment of the flora and any spraying of meadows, ploughing or drainage improvements will lessen the conservation importance of these sites. Any grazing carried out after the hay cut may be beneficial to dung-feeding invertebrates as long as the livestock have not been recently dosed with broad-spectrum avermectin wormers.

Maintain uncut margins

Although many invertebrates may be present within a hay meadow, few can complete their life cycles in fields that are cut in mid-summer. Leaving uncut strips at the margins of meadows or alongside features such as watercourses will provide refuge areas for invertebrates after the hay crop has been taken. Retention of diversely structured scrub at the fringes of hay meadows will also provide shelter for invertebrate species present.

Maintain any water courses and wet areas

Although species such as mayflies and stoneflies are not normally associated with this habitat, they may be present in watercourses or waterbodies within upland hay meadows. The structure and management of marginal and riparian vegetation is important to ensure successful breeding of invertebrate species present. Work liable to damage this vegetation should aim to leave a mixture of species and sward heights. It is suggested such work should be undertaken on one bank only and on short stretches such as 50 metres in each 200 metres in any one year. The need for and objective of intervention should be questioned first.

Where seepages are present, there might be an interesting invertebrate fauna, including species such as craneflies in rather 'boggy' ground, but hay cutting can then be difficult. These wetter areas should be treated as important and not drained.

Rare and scarce invertebrates associated with upland hay meadows:

Beetles (*Coleoptera*)

Weevils (*Curculionoidea*)

Omiomima mollina Na

Click beetles (*Elateridae*)

Ctenicera pectinicornis Na

Oedostethus quadripustulatus Na

Flies (*Diptera*)

Blowflies, dung flies, flesh flies and allies (*Calyptrata*)

Nanna brevifrons (*Scathophagidae*) N

In addition to the species covered above, upland hay meadows may be important for *anthomyiids* of the genus *Chiastocheta*, which are associated with Globeflower (*Trollius europaeus*), a widespread component of upland hay meadow and damp grasslands.

Hoverflies (*Syrphidae*)



Eristalis rupium N

Eristalis rupium is only likely to be present if wetland is present nearby

Parasyrphus nigratarsis may be present if Alder (*Alnus glutinosa*) is nearby

Cheilosia sp. B is almost certainly using *Rumex longifolius* in places like Deeside in riverside meadows.

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