

Northern Ireland Priority Habitat Guide: Lowland meadow

What is a Lowland meadow?

Lowland meadow is semi-natural unimproved neutral grassland found on enclosed land and often contains a rich variety of wildflowers. The habitat is largely associated with agricultural land, comprises of grasslands cut for hay as well as unimproved neutral pastures with livestock grazing. It is characterised by low input agricultural practices, exclusion of stock during the early growing season, little or no fertiliser application and generally only a light dressing of farmyard manure. Other examples of Lowland meadows can be found in church yards, recreational sites and roadside verges.

Table 1: Linking Habitat types with Annex 1, ASSI features and NI Priority Species

Northern Ireland Priority Habitat type: Lowland meadow		
Habitat Directive Annex 1 habitats (SAC Features)	ASSI features	NI priority species
None	Lowland meadow	Skylark, Irish Hare, Corncrake, Meadow Crane's-bill



Definition

Lowland meadow in Northern Ireland is defined as being grasslands which have:

- A high cover (>30%) of herbs (including Sedges and Wood-rushes).
- Absence or very low percentage (<10%) cover of Rye-grass, White Clover, Creeping Buttercup and Noxious Weeds.

Lowland meadows consist of a rich mixture of native flowers, grasses and sedges. They tend to have high, but variable species richness with as many as 35 or more plant species occurring in a 2m x 2m square. This is difficult to determine outside the main summer flowering period.

The National Vegetation Classification (NVC) codes are useful in determining which habitat types fall within the Lowland meadow priority habitat. NVC codes are provided in Appendix 2.

Where are they found?

Lowland meadows are often found on steep slopes and inaccessible areas, which has restricted agricultural improvement. They can make up a part of a field that is otherwise used for intensive grass production. The habitat often occurs as part of a transition or habitat mosaic, for example around upland fringes where it often grades into species-rich acid grassland or calcareous grassland. Field boundaries that incorporate an earth bank may act as refuges for Lowland meadow communities. Lowland meadow mainly occurs in Co. Fermanagh and south Co. Armagh. The resource also displays a gradual transition to wetter grassland types in the west. Lowland meadows with public access include Slievenacloy in the Belfast Hills, Crom Estate and Florence Court in County Fermanagh, Castle Ward and Crawfordsburn Country Park in County Down.

DAERA hold priority habitat and species data on the NIEA Environment Map Viewer. See <https://apps.daira-ni.gov.uk/nedmapviewer/> (and link to video tutorial). Note that the Map Viewer indicates areas which hold NIEA records of habitat/species data, but does not infer the complete coverage of these environmental assets in Northern Ireland.

Why are they important to wildlife?

Lowland meadows are species-rich with a wide range of plants and grasses, which generally occur in a relatively small area. Typical herb species include Meadow Vetchling, Common Knapweed, Bird's-foot-trefoil, Yellow/Hay-rattle, Bulbous Buttercup and Red Clover. Notable local species include the Meadow Crane's-bill and Wood Crane's-bill. The sward is characterised by fine-leaved grasses such as Common Bent, Red Fescue, Crested Dog's-tail and Sweet Vernal-grass; the latter gives hay its distinct sweet scent. Exceptional meadows host the Greater Butterfly-orchid.

The variety and abundance of flowering plants within semi-natural habitats provide good sources of pollen and nectar for many of our pollinating insects such as bumblebees, hoverflies, butterflies and moths. For further information on habitat management for pollinators, refer to the All-Ireland Pollinator Plan resources: www.pollinators.ie. Invertebrate species provide food for birds, bats and other small mammals. Lowland meadows support a variety of wildlife including priority species such as the Skylark, Corncrake and Irish Hare.

Pressures & Threats

Lowland meadow has undergone considerable contraction and degradation within the UK & Ireland over the past century. Traditional species-rich hay meadows may have declined in N. Ireland by as much as 97% over the last 50 years. Lowland meadows declined by 20% between 1991 and 2001. There are now approximately 4,655ha of Lowland meadows remaining. They have become a fragmented habitat with no large areas remaining in Northern Ireland. Lowland meadows are a threatened habitat and are under risk due to a number of factors. These include:

- Agricultural improvement: cultivation, ploughing, re-seeding, fertiliser and pesticide application have all been major causes of habitat loss and continue to be the most significant threat to this habitat.
- Management: if there is no management of the habitat through either cutting or grazing, Lowland meadow will undergo vegetation change leading to rank growth. This means the loss of many delicate herbs by invading coarse grasses, vigorous herbs, Bramble or Bracken.
- Grazing: appropriate levels of grazing are necessary to maintain the habitat by preserving a relatively low nutrient status and by keeping competitive species in check. Over-grazing results in a reduction of species diversity, as stress-tolerant, “weedy” species dominate.
- Abandonment: land abandonment increases the potential of encroachment by scrub species and successional woodland.
- Fragmentation: reduction in habitat size has led to piecemeal habitat and species loss in our remaining Lowland meadows.
- Afforestation: coniferous plantations have resulted in significant loss of Lowland meadows in the past.
- Airborne pollution: acidification and nitrogen enrichment from atmospheric deposition could potentially lead to vegetation change.
- Climate change: could potentially result in changes in the species composition and diversity of Lowland meadow communities and associated invertebrate populations.

Favourable management of Lowland meadow

These important grasslands should be protected and maintained where they occur, and should be restored where their condition has declined. Some of our most important grassland sites are protected through National and International legislation. In the wider countryside, grasslands are protected from development and increased agricultural productivity through planning policies and legislation such as the Environmental Impact Assessment Regulations.

Land reclamation techniques such as use of fertilisers, drainage and reseeding, can result in habitat loss or damage and should be prevented.

Lowland meadows are best managed by light, extensive grazing (cattle grazing is preferred). Undergrazing and/or overgrazing should be avoided. Risk of poaching should be minimised and any livestock removed off site in very wet conditions.

Where the historical management of the habitat has been for hay production, this should continue. Cutting should be delayed until after mid-July, this will allow plants to flower and set seed. Aftermath grazing should be carried out in late summer and autumn to keep the sward low and assist seed germination.

Where hay is produced on lowland meadow small amounts (less than 2.5 tonnes/ha/year) of farm yard manure may be applied. No other form of nutrient inputs should be applied as it would reduce species-richness and diversity with a loss of nature conservation value.

Encroaching scrub and tussock forming rushes should be controlled by cutting as these can spread at the expense of the priority habitat. Machinery should only be used where ground conditions permit.

Trees should not be planted on this grassland type and nor should it be used for supplementary feeding or storage areas.

On known or potential Marsh Fritillary sites please refer to Marsh Fritillary habitat guide ([hyperlink](#)).

How do we determine the “health” or condition of Lowland meadow?

The conservation status can be determined by the condition of the habitat. Favourable condition is defined by setting targets or target ranges for a series of different attributes. These are components or characteristics of the vegetation that are relatively easy to measure, but which are reliable indicators of the “health” of the habitat.

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NIEA has developed Rapid Condition Assessments for several broad habitat types (grassland, moorland, woodland, coastal and wetlands). These will be made available online in the future. In the interim copies can be requested by contacting NIEA by E-mail: NIEA.EFSHigher@daera-ni.gov.uk.

Appendix 1: Lowland meadow indicator species

Positive Indicators:

<i>Agrostis capillaris</i>	Common Bent
<i>Alchemilla sp</i>	Lady's Mantle species
<i>Anemone nemorosa</i>	Wood Anemone
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass
<i>Briza media</i>	Quaking-grass
<i>Carex caryophylla</i>	Spring-sedge
<i>Carex flacca</i>	Glaucous Sedge
<i>Centaurea nigra</i>	Common Knapweed
<i>Crepis paludosa</i>	Marsh Hawk's-beard
<i>Cynosurus cristatus</i>	Crested Dog's-tail
<i>Dactylorhiza sp.</i>	Orchid
<i>Danthonia decumbens</i>	Heath-grass
<i>Euphrasia officinalis</i> agg.	Eyebright
<i>Festuca rubra</i>	Red Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Galium verum</i>	Lady's Bedstraw
<i>Geranium pratense</i>	Meadow Crane's-bill
<i>Geranium sylvaticum</i>	Wood Crane's-bill
<i>Lathyrus linifolius</i>	Bitter Vetch
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leontodon sp.</i>	Hawkbit
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Linum catharticum</i>	Fairy Flax
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil
<i>*Ophioglossum vulgatum</i>	Adder's-tongue
<i>Pimpinella saxifraga</i>	Burnet Saxifrage
<i>*Platanthera chloratha</i>	Greater Butterfly-orchid
<i>Potentilla erecta</i>	Tormentil
<i>Primula veris</i>	Cowslip
<i>Primula vulgaris</i>	Primrose
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus bulbosus</i>	Bulbous Buttercup
<i>Rhinanthus minor</i>	Yellow-rattle
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Trifolium pratense</i>	Red Clover
<i>Vicia cracca</i>	Tufted Vetch

Negative Indicators:

<i>Arrhenatherum elatius</i>	False oat-grass
<i>Bellis perennis</i>	Daisy
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Dactylis glomerata</i>	Cock's-foot
<i>Deschampsia caespitosa</i>	Tufted hair-grass
<i>Galium aparine</i>	Cleavers
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Phleum pratense</i>	Timothy
<i>Plantago major</i>	Greater Plantain
<i>Pteridium aquilinum</i>	Bracken
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Senecio jacobaea</i>	Common Ragwort
<i>Trifolium repens</i>	White Clover
<i>Urtica dioica</i>	Stinging Nettle

* **Core indicators** –please refer to the Grassland Indicator Key in the Grassland Rapid Condition Assessment. Note: most LM species are found in other grassland habitats, and therefore LM is best identified by eliminating other possibilities first. The LM core indicators are uncommon you should not expect to locate them, but if present they will help to confirm LM.

Appendix 2: National Vegetation Classification (NVC) codes

Lowland meadow in Northern Ireland encompass a range of plant communities that broadly reflect a number of those communities described in the National Vegetation Classification (NVC) of Great Britain (Rodwell, 1991a) where descriptions and codes are given to associations of plants that are characteristic of particular environmental and management conditions.

Lowland meadow priority habitat

MG5 - Crested Dog's-tail *Cynosurus cristatus* - Common Knapweed *Centaurea nigra* grassland

The typical lowland grassland of grazed hay meadows treated in the traditional fashion on neutral brown soils of loamy to clayey texture.

Lowland meadow often grades into species-rich examples of acid grassland - (NVC type U4 *Festuca ovina* – *Agrostis capillaris* – *Galium saxatile* acid grassland) and calcareous grassland - (NVC type CG10 *Festuca ovina* – *Agrostis capillaris* – *Thymus polytrichus* base-rich grassland).