

LOWLAND MEADOWS (UK BAP PRIORITY HABITAT)



Summary

These are unimproved grasslands on well-drained neutral soils in the lowlands. Most Scottish examples belong to the MG5 NVC community and are on well-drained ground, with grassy swards and an abundance of herbs. Much less common are examples of MG8, where the same species are accompanied by wetland herbs on ground which is wetter as a result of being flushed or periodically inundated.

This habitat is scattered widely through the lowlands of Scotland, with records also from low altitude sites in more generally upland areas in the Highlands and islands. At least 1005 hectares of this habitat occurs in Scotland. Some examples occupy whole fields; others are parts of small-scale mosaics including scrub, wetlands and other types of grassland.

Lowland meadows are home to some uncommon plant species and are an important food source for grazing mammals, invertebrates and birds. They are developed from and maintained by grazing or mowing or both.

What is it?

These are unimproved grasslands on neutral soils in the agriculturally enclosed lowlands.

Most Scottish examples belong to the MG5 NVC community and are on well-drained ground. These swards are about 20-50 cm tall and composed mainly of red fescue *Festuca rubra*, Yorkshire fog *Holcus lanatus*, crested dog's-tail *Cynosurus cristatus*, common bent *Agrostis capillaris* and sweet vernal grass *Anthoxanthum odoratum*, mixed with an abundance of herbs such as ribwort plantain *Plantago lanceolata*, red clover *Trifolium pratense*, white

clover *T. repens*, black knapweed *Centaurea nigra*, meadow buttercup *Ranunculus acris*, bulbous buttercup *R. bulbosus*, selfheal *Prunella vulgaris*, common sorrel *Rumex acetosa*, yellow rattle *Rhinanthus minor* and eyebrights *Euphrasia* agg..

Much less common are the examples of MG8, in which these same species are accompanied by an abundance of marsh marigold *Caltha palustris* and other wetland species such as meadowsweet *Filipendula ulmaria*, cuckooflower *Cardamine pratensis* and the moss *Calliergonella cuspidata*, on ground which is wetter through being flushed or periodically inundated.

Lowland meadows are among the main habitats in Britain for some plant species such as *Ranunculus bulbosus*, *Rhinanthus minor*, northern marsh orchid *Dactylorhiza purpurella*, common twayblade *Listera ovata*, fragrant orchid *Gymnadenia conopsea*, small white orchid *Pseudorchis albida*, butterfly orchids *Platanthera* spp. and northern hawk's-beard *Crepis mollis*. As in other types of unimproved grassland the flowering plants here are a valuable nectar source for insects. This is an important breeding and feeding habitat for many bird species and some mammals.

The Scottish examples of these two NVC communities are broadly similar to their English and Welsh counterparts, although Scottish MG8 tends to be more mossy than that in the south and to have more sharp-flowered rush *Juncus acutiflorus* and less articulated rush *J. articulatus*.

How do I recognise it?

Differentiation from other Priority Habitats

The most similar priority habitats are Upland hay meadows (distinguished by being composed entirely of the MG3 community which contains abundant wood crane's-bill *Geranium sylvaticum* and does not occur in any other priority habitat), Upland calcareous grassland and Lowland calcareous grassland (both of which have abundant wild thyme *Thymus polytrichus*, a species which is no more than scarce in Lowland meadows), and Lowland dry acid grassland (differing from Lowland meadows in the scarcity or lack of *Cynosurus cristatus*, *Trifolium pratense*, *Ranunculus bulbosus* and *Centaurea nigra*, and the frequent presence of *Rumex acetosella* or *Galium saxatile*).

Definition in relation to other habitat classifications

Classification	Habitat types belonging to this UK BAP priority habitat
NVC	MG5 (examples which are not on coastal cliffs). MG4 and MG8 (examples not in coastal/floodplain situations with ditches and periodic inundation, but note that MG4 does not occur in Scotland). (All of the above NVC communities are included in the Scottish Biodiversity List.)
Phase 1	B2 (examples of MG5 not on coastal cliffs, and examples of MG4 not in coastal/floodplain situations with ditches and periodic inundation). B5 (examples of MG8 which are not in coastal/floodplain situations with ditches and periodic inundation).

UK BAP broad habitat	MG4–5 and MG8 examples of this priority habitat belong in the broad habitat - Neutral grassland
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Almost all Scottish Lowland meadows belong to the MG5 NVC community and the B2 Phase 1 habitat type. Examples of MG4 (England only) and MG8 in coastal or floodplain situations with ditches and periodic inundation by fresh or brackish water belong in the Coastal and floodplain grazing marsh priority habitat. Examples of MG5 on coastal cliffs belong in the Maritime cliff and slopes priority habitat.

Definition in relation to legislative classifications

Classification	Habitat types belonging to this UK BAP priority habitat
Habitats Directive Annex I	The Lowland meadows priority habitat includes one Annex I habitat (H6510), but this equates with NVC type MG4 and does not occur in Scotland.
SNH SSSI habitat features	Lowland neutral grassland SSSI feature type (all of the Lowland meadows component (i.e. NVC MG4-5 and MG8)) of this SSSI habitat feature belongs in this priority habitat.

Where is it?

This priority habitat occurs on well-drained to flushed or periodically inundated neutral soils on level to moderately sloping ground in the enclosed agricultural lowlands. Some examples occupy whole fields surrounded by other fields of improved grassland, but other examples are parts of diverse habitat mosaics including scrub, wetlands (including the Lowland fens priority habitat) and other types of grassland (including the Lowland calcareous grassland and Lowland dry acid grassland priority habitats).

These grasslands are scattered widely through the lowlands of Scotland and the UK as a whole. There are also records from low altitude sites in areas with a more upland environment: Shetland, the Hebrides, Lochaber, Argyll, the Breadalbane hills and the eastern Grampian mountains. Although this priority habitat is widespread it is much less common than the agriculturally improved grasslands (NVC MG6-7) which cover so much of lowland Britain (and are probably derived, by treatment, from Lowland hay meadows habitat), and the coarser, species-poor neutral grasslands (MG1) which are very common along road verges and in other ungrazed or little-grazed places. At least 1005 hectares of this habitat occurs in Scotland (Ellis and Munro 2004).

Vegetation similar to MG8 and (perhaps to a lesser degree) MG4 exists in mainland Europe and (MG8 only) the Faroes, but MG5 does not seem to have any equivalent on the European mainland.

What is special about it?

In Scotland, and in the UK as a whole, Lowland meadows are of high conservation value in that most examples are of a much more semi-natural and species-rich character than the surrounding intensively managed lowland farmland. While most lowland grassland has been converted to agriculturally improved, species-poor swards, these Lowland meadows are the surviving remnants of the previously much greater extent of unimproved herb-rich neutral grassland.

Some species of special conservation status recorded in this priority habitat in Scotland are listed below.

Group	Common name	Latin name	UK BAP priority list	EC Habitats Directive Annex II	Scottish Bio-diversity List	Red Data List	Wildlife and Countryside Act (1981)
bees	great yellow bumblebee	<i>Bombus distinguendus</i>	y		y	y	
birds	grey partridge	<i>Perdix perdix</i>	y		y	y	
birds	corncrake	<i>Crex crex</i>	y		y	y	y
birds	lapwing	<i>Vanellus vanellus</i>	y		y	y	
birds	barn owl	<i>Tyto alba</i>			y		y
birds	skylark	<i>Alauda arvensis</i>	y		y	y	y
birds	starling	<i>Sturnus vulgaris</i>	y			y	
birds	linnet	<i>Carduelis cannabina</i>			y	y	
birds	house sparrow	<i>Passer domesticus</i>	y		y	y	
birds	tree sparrow	<i>Passer montanus</i>	y		y	y	
birds	chough	<i>Pyrrhocorax pyrrhocorax</i>			y		y
butterflies	small heath	<i>Coenonympha pamphilus</i>	y		y		
butterflies	northern brown argus	<i>Aricia artaxerxes</i>	y		y		y
butterflies	marsh fritillary	<i>Euphydryas aurinia</i>	y	y	y		y
flowering plants	small white orchid	<i>Pseudorchis albida</i>	y		y	y	
flowering plants	northern hawk's-beard	<i>Crepis mollis</i>	y		y	y	
flowering plants	lesser butterfly orchid	<i>Platanthera bifolia</i>	y		y	y	
flowering plants	greater butterfly orchid	<i>Platanthera chlorantha</i>			y	y	
mammals	brown hare	<i>Lepus europaeus</i>	y		y		

How do we manage it?

All examples of Lowland meadows are developed from and maintained by stock grazing (mostly cattle, sheep and horses) or by mowing. Some sites are managed for nature conservation with a combination of grazing and mowing: no grazing in spring; mown for a hay crop in summer, and then grazed from late summer through autumn or right through the winter. This allows plants to flower and set seed in spring and summer, but also prevents the vegetation from becoming so tall and dense that its botanical diversity is reduced.

Grazing and mowing prevent the vegetation from developing into what it would naturally be in these situations: some form of woodland. If left without grazing or mowing, larger plants will take over. This process will begin with coarse grasses such as false oat-grass *Arrhenatherum elatius*, cock's-foot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus* and *Festuca rubra* forming tall, thick swards so that within a decade MG5 can become MG1 coarse grassland of much less botanical interest. If left for longer, bramble *Rubus fruticosus* can become abundant (NVC W24) but shrubs and eventually trees will colonise, so the process will go through scrub (mostly W21 hawthorn *Crataegus monogyna* but also some W22 blackthorn *Prunus spinosa* or W23 gorse *Ulex europaeus*) and finally to woodland (W8 or W10).

Lowland meadows are more dependent on grazing or mowing than are Lowland calcareous grassland and Lowland dry acid grassland, because some examples of these last two survive on very steep rocky ground with thin, discontinuous soils. Lowland meadows need

deeper, more continuous soils and as such they tend to be more accessible and more readily treated with fertilisers.

It is best to avoid planting trees within Lowland meadows or immediately adjacent to small areas of this habitat. This is because the shade and leaf litter cast by trees can lead to losses of grassland plants and a reduction in botanical diversity.

References, links and further reading

Ellis, N.E. and Munro, K. 2004. A preliminary review of the distribution and extent of BAP priority habitats across Scotland. Scottish Natural Heritage Commissioned Report No.044 (ROAME No. F00NA02).

<https://www.nature.scot/information-library-data-and-research/information-library>

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Common Standards Monitoring guidance <http://www.jncc.gov.uk/page-2199>

Countryside Survey: <http://www.countrysidesurvey.org.uk>

National Biodiversity Network (NBN) <https://data.nbn.org.uk/>

Scottish Natural Heritage website: <http://www.nature.scot>

UKBAP information on the JNCC website: <http://jncc.defra.gov.uk/default.aspx?page=5155>