



UK Terrestrial & Freshwater Habitat Types: Lowland Grassland Habitat Description

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<https://webarchive.nationalarchives.gov.uk/20190301141028/http://jncc.defra.gov.uk/page-4532>.

The descriptions include information on a habitat's characteristics, extent & distribution, pressures & threats, condition, protection, and management. Although much of the information remains of value and interest, it is historic and therefore does not necessarily reflect the most up-to-date state of knowledge of the habitat.

Please note that, given the age of the material, some of the links (particularly to external websites) may no longer work.

UK Lowland Grassland Habitats

Lowland semi-natural grassland in the UK includes a range of well-known habitat types. Lowland calcareous grassland is found predominantly on chalk or limestone, whereas Lowland dry acid grassland is associated with acid rocks, sands or gravels, or heavily leached soils in the upland fringes. Lowland meadows are found widely on neutral soils, albeit often as small and isolated fragments. Upland hay meadows are a feature of the upland fringes of northern England and Scotland. Poorly drained soils, particularly in the west, are home to Purple moor grass and rush pastures, whilst Calaminarian grassland is a specialised habitat found on metalliferous soils, including mine spoil and river shingles.

Semi-natural lowland grassland is one of the most evocative and yet threatened habitats in the UK. Although grassland is widespread in the UK lowlands, particularly in the west, the majority has been agriculturally improved. As a result this habitat has probably lost more plant species diversity than any other semi-natural habitat in the UK. Surviving areas of sympathetically managed semi-natural grassland are scarce and often small and isolated from each other.

UK semi-natural lowland grasslands are a priority for nature conservation. This partly relates to their steep decline and scarcity, but also to their naturalness and intrinsic appeal and because they provide home to a host of highly specialised plants and animals. Accordingly, there are seven UK lowland grassland coastal habitat types listed under Annex I of the EU Habitats Directive and seven lowland grassland priority habitats listed under the UK Biodiversity Action Plan.

1 UK Lowland Grassland Habitat Types & Characteristics

1.1 Lowland meadows



Lowland neutral meadows and pastures consist of a rich mixture of native grasses and broad-leaved herbs. They occur throughout lowland UK, often on shallow slopes or level ground with relatively deep soils that is neither strongly acidic nor lime-rich. The meadows may be managed for hay cropping, usually with grazing of the aftermath (vegetation that re-grows following cutting), or by grazing as permanent pasture.

Up to 35 or more plant species may occur in a 2 m X 2 m sample, including grasses such as crested dog's tail (*Cynosurus cristatus*) and red fescue (*Festuca rubra*), and herbs such as knapweed (*Centaurea nigra*), bird's-foot trefoil (*Lotus corniculatus*) and ox-eye daisy (*Leucanthemum vulgare*). Some pastures may be important for waxcap and earth-tongue fungi. Old meadows and pastures can support a rich insect community, including butterflies, grasshoppers, bumblebees and yellow meadow ants. They can also provide important feeding areas for birds such as the linnet *Carduelis cannabina* and meadow pipit *Anthus pratensis*, and bats and small mammals such as the field vole *Microtus agrestis*.

The flora of lowland meadows can include rare and scarce species such as snakes's head fritillary (*Fritillaria meleagris*), Sulphur clover (*Trifolium ochroleucon*), field gentian (*Gentianella campestris*) and green-winged orchid (*Orchis morio*). This may be matched by a

scarce invertebrate fauna, including hornet robber-fly (*Asilus crabroniformis*) and shrill carder bee (*Bombus silvarum*).

Lowland meadows also include the now scarce flood-meadows of central England and eastern Wales, which rely on seasonal flooding in winter, and support tall, moisture-loving species such as great burnet (*Sanguisorba officinalis*), meadowsweet (*Filipendula ulmaria*) and pepper-saxifrage (*Silaum silaus*)

1.2 Upland hay meadows

Upland or mountain hay meadows are a distinctive, rare habitat of northern England and central Scotland. They occur in scattered fields or in small isolated groups of fields in the upland fringes. The hay meadows are typically grazed by cattle or sheep from the autumn through to early spring, before being 'shut-up' to allow the hay crop to grow. Hay is normally cut in July or August, but in some cases as late as September. The livestock are then typically returned to the field to graze the aftermath (vegetation that re-grows following cutting). Traditionally, the meadows were given a light dressing of farmyard manure in the spring, together with occasional liming to maintain neutral soil pH conditions.



Upland hay meadows consist of a rich mixture of native grasses and broad-leaved herbs, including for example wood crane's-bill (*Geranium sylvaticum*), great burnet (*Sanguisorba officinalis*) and lady's mantle (*Alchemilla* spp). They are also important as feeding areas for invertebrates and bats, and provide nesting and feeding sites for birds such as yellow wagtail, twite, and curlew. Threatened species of upland hay meadows include various species of rare lady's mantle (*Alchemilla*), northern hawk's-beard (*Crepis mollis*) and small-white orchid (*Leucorchis albida*) on hay meadow banks.

1.3 Lowland calcareous grassland



Lowland calcareous grasslands are characterised by lime-loving plants and are found mainly, but not entirely, in the south and east of the UK, where they occur on shallow, calcareous soils generally overlying limestone rocks, including chalk. These grasslands are now largely found on distinct topographic features such as escarpments or dry valley slopes but occasionally remnants on flatter topography survive such as on Salisbury Plain or in Breckland. By contrast, the blue moor-grass *Sesleria* grasslands are found up to the upland fringes in northern England. Calcareous grasslands are typically managed by grazing but may sometimes be cut for hay.

The flora can be very rich including many nationally rare and scarce species such as monkey orchid (*Orchis simia*) hoary rockrose (*Helianthemum canum*) and pasque flower (*Pulsatilla vulgaris*). This can be matched by an equally diverse invertebrate fauna including scarce species like the Adonis blue (*Lysandra bellargus*) and the wart-biter cricket (*Decticus*

verrucivorus). These grasslands also provide feeding and breeding habitat for birds such as the stone curlew (*Burhinus oediconemus*) and skylark (*Alauda arvensis*).

1.4 Lowland dry acid grassland

Lowland acid grasslands are widely distributed throughout the UK, typically on nutrient-poor, acid soils overlying sands and gravels, hard volcanic rocks or sandstones. Large areas occur in the upland fringes (generally below 300 m) but more important are the well-drained often parched habitats that are found in the drier lowland areas, such as the East Anglian Breckland, the New Forest and the Weald. Species-rich forms are also very occasionally found in the western hills. Lowland acid grassland is often an important component of heathland landscapes, of old parklands and of commons, and more locally, of coastal cliffs and shingle. It is normally managed as pasture.

Species richness can be variable in lowland acid grassland, ranging from less than 5 to greater than 25 plant species per 2 m X 2 m sample. Parched acid grassland can provide habitat for a number of rare and scarce plants including mossy stonewort (*Crassula tillaea*), sticky catchfly (*Lychnis viscaria*) and spring speedwell (*Veronica verna*). The open, sandy soils can support considerable numbers of ground-dwelling and burrowing invertebrates such as solitary bees and wasps, and are favoured by birds such as the stone-curlew (*Burhinus oediconemus*), woodlark (*Lullula arborea*) and nightjar (*Caprimulgus europaeus*). By contrast, fungi such as wax-caps, earth-tongues and fairy clubs favour grazed, moist acid grassland, particularly in the west of the UK.

1.5 Purple moor grass and rush pasture

The marshy grasslands known as purple moor grass and rush pastures traditionally provided useful grazing in dry summers. They are found throughout the UK, although are mainly concentrated in high rainfall areas of the west on gently sloping land with poorly-drained soils. Important areas are the Culm grasslands of Devon and Cornwall, the Rhôs pastures of Wales and the fen meadows of County Fermanagh. Today they are still used as rough grazing for cattle or ponies with an occasional hay crop, although increasingly management is being abandoned altogether.

They are usually dominated by purple moor-grass (*Molinia caerulea*) and/or rushes, especially sharp-flowered rush (*Juncus acutiflorus*), but may include up to 50 plant species in a 2 m X 2 m sample including characteristic species such as meadow thistle (*Cirsium dissectum*) and whorled caraway (*Carum verticillatum*). The habitat supports a varied invertebrate fauna; the best known example being the marsh fritillary butterfly (*Euphydryas aurinia*). Curlew (*Numenius arquata*) and lapwing (*Vanellus vanellus*) breed in marshy pastures and other species using the habitat include snipe (*Gallinago gallinago*), barn owl (*Tyto alba*), grass snake (*Natrix natrix*) and adder (*Vipera berus*).

1.6 Calaminarian grassland

Calaminarian grasslands can be found on soils that have levels of heavy metals, such as lead, zinc chromium and copper, which are toxic to most plant species. They mostly occur in the north and west of the UK on artificial habitats resulting from past mining activity, although there are a few near-natural examples. The habitat occurs in three main situations: as near-natural, open vegetation of serpentine rock and mineral vein outcrops with skeletal soils, such as at the Keen of Hamar in Shetland; on stable river gravels rich in lead and zinc, such as on the Tyne and Allen river gravels in Northumberland; and on artificial mine workings and spoil heaps, such as on the Halkyn Mountain in north Wales.

The vegetation is usually species-poor, but often includes spring sandwort *Minuartia verna* and alpine penny-cress *Thlaspi caerulescens*. There is a genetically adapted range of other species including sheep's fescue *Festuca ovina*, sea campion *Silene uniflora* and thrift *Armeria maritima*. The heavy metal toxicity of the soils combined with paucity of nutrients results in open, slow-growing vegetation. Rarer species such as forked spleenwort *Asplenium septentrionale* can benefit from lack of competition from vigorous colonists. Some sites hold important populations of rare bryophytes and lichens.

2 Correspondences between UK Lowland Grassland Habitats Types

The table below shows how the different lowland grassland habitat types recognised by the mainstream habitat classifications in the UK relate to each other. The types included are those recognised under the UK Biodiversity Action Plan (UK BAP), the EU Habitats Directive, and the British National Vegetation Classification (NVC).

The table shows only how the types broadly fit together – some Lowland Grassland Habitats may belong to other habitat types. For more detailed information see the [habitat correspondences interactive spreadsheet](#).

Table 2.1. Correspondences between UK lowland grassland habitat types (created 2010).

UK BAP priority habitats	EU Habitats Directive Annex I habitats	National Vegetation Classification types
Lowland meadows	H6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	MG4 <i>Alopecurus pratensis</i> - <i>Sanguisorba officinalis</i> grassland
		MG1c-e <i>Arrhenatherum elatius</i> grassland, <i>Filipendula ulmaria</i> , <i>Pastinaca sativa</i> and <i>Centaurea nigra</i> sub-communities
		MG2 <i>Arrhenatherum elatius</i> - <i>Filipendula ulmaria</i> tall-herb grassland
		MG5 <i>Cynosurus cristatus</i> - <i>Centaurea nigra</i> grassland
		MG7c-related <i>Alopecurus pratensis</i> - <i>Poa trivialis</i> - <i>Cardamine pratensis</i> floodplain grassland
		MG8 <i>Cynosurus cristatus</i> - <i>Caltha palustris</i> grassland
Upland hay meadows	H6520 Mountain hay meadows	MG3 <i>Anthoxanthum odoratum</i> - <i>Geranium sylvaticum</i> grassland

UK BAP priority habitats	EU Habitats Directive Annex I habitats	National Vegetation Classification types
Lowland calcareous grassland	H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) (including important orchid sites)	CG1 <i>Festuca ovina</i> - <i>Carlina vulgaris</i> grassland
		CG2 <i>Festuca ovina</i> - <i>Avenula pratensis</i> grassland
		CG3 <i>Bromus erectus</i> grassland
		CG4 <i>Brachypodium pinnatum</i> grassland
		CG5 <i>Bromus erectus</i> - <i>Brachypodium pinnatum</i> grassland
		CG6 <i>Avenula pubescens</i> grassland
		CG7 <i>Festuca ovina</i> - <i>Hieracium pilosella</i> - <i>Thymus praecox</i> / <i>pulegioides</i>
		CG8 <i>Sesleria albicans</i> - <i>Scabiosa columbaria</i> grassland
		CG9 <i>Sesleria albicans</i> - <i>Galium sternerii</i> grassland
		CG10 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Thymus praecox</i> grassland
Lowland dry acid grassland	H2330 Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands	SD11 <i>Carex arenaria</i> - <i>Cornicularia aculeata</i> dune community (inland sites)
	not covered	SD12 <i>Carex arenaria</i> - <i>Festuca ovina</i> - <i>Agrostis capillaris</i> dune grassland (inland sites)
	not covered	U1 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Rumex acetosella</i> grassland
	not covered	U3 <i>Agrostis curtisii</i> grassland
	not covered	U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland
	not covered	U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland
	not covered	SD8 <i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland (inland sites)
	not covered	SD10 <i>Carex arenaria</i> dune community (inland sites)
	not covered	U20a <i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community, <i>Anthoxanthum odoratum</i> sub-community

UK BAP priority habitats	EU Habitats Directive Annex I habitats	National Vegetation Classification types
Purple moor grass and rush pastures	H6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	M24 <i>Molinia caerulea</i> - <i>Cirsium dissectum</i> fen-meadow
		M26 <i>Molinia caerulea</i> - <i>Crepis paludosa</i> mire
		M22 <i>Juncus subnodulosus</i> - <i>Cirsium palustre</i> fen-meadow
		M23 <i>Juncus effuses</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush-pasture
		M25 <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire
Calaminarian grasslands	H6130 Calaminarian grasslands of the <i>Violetalia calaminariae</i>	OV37 <i>Festuca ovina</i> - <i>Minuartia verna</i> community

[created July 2010; revised 2 Oct 2014]

3 Extent & Distribution of UK Lowland Grassland Habitats

The tables below give information on the extent (area covered) and distribution of lowland grassland habitats around the UK. The most extensive are purple moor grass and rush pastures and dry acid grassland, which occur mostly in lowland Wales and England. Calcareous grassland and lowland meadows are less extensive and occur mainly in the English lowlands. Upland hay meadows (which mainly adjoin the upland margins of England uplands) and Calaminarian grassland (which in the lowlands mainly occurs in England and Wales) are both scarce habitat types.

3.1 UK BAP habitats

The table below shows the estimated extent of the six lowland grassland priority habitat types recognised by the UK Biodiversity Action Plan. Values given are the overall total extent and percentage in each country (where available), based on information extracted from the (now archived) [Biodiversity Action Reporting System \(BARS\)](#).

Table 3.1. Estimated extent (based on 2008 reporting data) of the grassland priority habitats recognised by the UK Biodiversity Action Plan.

UK BAP priority habitat	England (ha)	Wales (ha)	Scotland (ha)	Northern Ireland (ha)	United Kingdom (ha)
Purple moor grass and rush pastures	21,544	32,161	6,768	18,476	79,400
Lowland dry acid grassland	20,142	36,473	4,377	674	61,650
Lowland calcareous grassland	38,687	1,146	761	–	40,600
Lowland meadows	7,282	1,322	980	937	10,500
Upland hay meadows	870	–	27	–	900
Calaminarian grasslands [most of this habitat in Scotland occurs in the uplands]	<200	50	[<200]	–	<450

3.2 EU Habitats Directive Annex I types

The table below shows the estimated extent of lowland grassland habitat types listed under Annex I of the EU Habitats Directive.

Table 3.2. Estimated extent (in 2013) of the lowland grassland habitat types listed under Annex I of the EU Habitats Directive (derived from the 2013 UK Report on Implementation of the Habitats Directive). Note that for habitats that occur in both lowlands and uplands, the area given is the total for both locations.

EU Habitats Directive Annex I types	England (ha)	Scotland (ha)	Wales (ha)	Northern Ireland (ha)	UK (ha)
H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) (including important orchid sites) [a small part of this habitat occurs in the uplands]	48,700	270	741	936	50,647
H6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	2,000	80	516	1,000	3,596
H6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	1,500	–	11	–	1,511
H6520 Mountain hay meadows	1,000	50	–	–	1,050
H6130 Calaminarian grasslands of the <i>Violetalia calaminariae</i> [most of this habitat in Scotland occurs in the uplands]	200	[80]	49	–	329
H2330 Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands	120	–	–	–	120

4 Threats to UK Lowland Grassland Habitats

UK lowland grassland habitats and their associated species are threatened by a range of factors. Most grassland in the UK has undergone agricultural improvement through ploughing and re-sowing, heavy inputs of fertilisers, and intensive cutting or grazing. This remains an important threat, as does over-grazing or cutting at the wrong time of year. Increasingly, grasslands are also threatened by under-management or abandonment of traditional grazing or cutting. Conservation action and planning policies have reduced some of these threats, but agricultural intensification and abandonment, as well as loss to urban development, remain as serious issues. Less tangible threats are posed by habitat fragmentation and isolation, atmospheric nitrogen deposition and climate change.

The table below provides a summary of major pressures and threats to UK lowland grassland habitats – details are given beneath. These are based on information in the 3rd UK Report on Implementation of the Habitats Directive, the UK Biodiversity Habitat Action Plans, and Common Standards Monitoring for Designated Sites: First Six Year Report.

Table 4.1. Summary of major pressures and threats to lowland grassland habitats.

UK BAP priority habitat	Modification of agricultural practices	Fragmentation	Air pollution	Under-management	Development	Water management & quality	Land reclamation & mineral re-working
Lowland meadows	*	*	*	*	*	*	
Purple moor grass and rush pastures	*	*	*	*	*	*	
Lowland dry acid grassland	*	*	*	*	*		
Lowland calcareous grassland	*	*	*	*	*		
Calaminarian grassland	*	*	*	*			*
Upland hay meadows	*	*	*				

4.1 Under-management

Sites need a minimal level of grazing and/or hay-cropping, which in some cases is not achieved. For flood meadows and purple moor-grass and rush pastures, management by cutting and/or grazing may need to be increased if the water which inundates them contains high levels of nutrients. Under-management is largely due to current agricultural economics and policies, exacerbated by stock regulations and restrictions. Some farmers are reluctant to keep stock (large stock in particular) on pasture perceived to have little nutritional value. The consequent lack of management such as cutting, grazing or flooding will lead to colonisation by shrubs and trees which over-top the grasses and herbs and develop into scrub and woodland. On some grasslands, bracken encroachment is a common result, sometimes together with invasive species problems. Calaminarian grasslands require more or less continuous grazing by rabbits or sheep, without which soil organic material builds up, with a gradual dilution of the effect of heavy metal contaminants, often resulting in scrub invasion. In this case some form of disturbance may be necessary to maintain soil toxicity.

4.2 Modification of agricultural practices

This includes draining, cultivation and fertilising as well as inappropriate cutting/grazing and has resulted in an overall loss of grassland biodiversity through loss of species number and abundance. The practice of cutting grass early for silage rather than hay reduces seeding by flowering plants and destroys the nests of characteristic birds. For some grasslands, the timing of spring shut-up date is also thought to be important, particularly upland hay meadows. Improvement of grassland, usually done by re-seeding and fertilizing, drainage and stock feeding, reduces sward species diversity as well as habitat diversity over a wider area. Inappropriate grazing can also lead to a build-up of nutrients. The application of herbicides can also be a direct cause of species loss.

4.3 Fragmentation

Many grassland habitats have existed in a fragmented state for many centuries, so fragmentation *per se* should not be seen simply as unfavourable. However, in some places fragmentation is extreme and it occurs only in very small, isolated patches and fragmentation is thus an issue of great concern for this habitat. It may prove to be a threat to the sustainability of many species populations, as well as causing management problems. Some semi-natural lowland grassland sites may be too small to be considered viable. Habitat fragmentation and isolation also reduce the ability of species to respond to climatic change because there is less potential for a species to colonise (migrate) from distant sites.

4.4 Air Pollution

Based on an assessment of the exceedence of relevant critical loads, air pollution is considered to be a potentially significant pressure to the structure and function of most lowland semi-natural grassland habitats. Atmospheric nitrogen deposition is a particular concern as it is considered to be a key threat for most semi-natural grassland types. For further information: [UK Air Pollution Information System \(APIS\)](#).

4.5 Water management and quality

For wet grasslands, the management of surface and groundwater is clearly crucial to providing the appropriate surface:groundwater conditions, for example, flood meadows require seasonal inundation. The constituents of the water are also important, for example the basic ions such as calcium, its pH, and quantity of the plant nutrients nitrogen and phosphorus.

4.6 Development

Although of lesser concern than the above agricultural changes, some sites are still being lost to industrial development, housing and infrastructure.

4.7 Mineral re-working and land reclamation

For Calaminarian grassland, the re-working of abandoned mineral veins can be a significant threat to some sites. At other sites, grassland is deliberately 'reclaimed' to remove a source of contamination to livestock or simply to improve the aesthetic appearance of former mining land.

5 Condition of UK Lowland Grassland Habitats

The condition of UK lowland grassland habitats has been assessed using Common Standards Monitoring Guidance for Lowland Grasslands. This involves making an assessment of individual sites using a series of habitat characteristics or attributes and standardised condition categories.

Sites are judged to be in favourable condition when the objectives for the habitat are being met. Sites with habitat that is in an unsatisfactory state are classed as in unfavourable condition. Where this is the case, a judgement is made as to whether the habitat is: (i) recovering – moving towards the desired state; (ii) declining – moving away from the desired state; or (iii) no-change – neither improving nor declining. Sites are classed as destroyed

(partially or completely) when the habitat is no longer present and there is no prospect of being able to restore it.

5.1 Condition on designated sites

The tables below summarise information on the condition of lowland grassland habitats at a UK-level as reported in 2006-07.

On sites designated as SSSI/ASSIs and SACs, the majority of the four main habitat types were either in a favourable or an unfavourable recovering condition. Nevertheless, a sizeable percentage of each was unfavourable and did not show signs of recovery. Information from SACs on lowland grassland habitats recognised under the EU Habitats Directive showed that the condition of these types varied greatly. Although in most cases most of the habitat was in favourable or unfavourable recovering condition, for H6510 Lowland hay meadows most was unfavourable with no signs of recovery.

Since 2006-07 the condition of some lowland grassland habitats has improved (e.g. see [The State of the Natural Environment 2008](#)).

Tables of condition of UK Lowland Grassland Habitats: The tables are based on data from the Common Standards Monitoring for Designated Sites: First Six Year Report (2006) and the 2nd UK Report on Implementation of the Habitats Directive (2007)

Table 5.1. Sites designated as SSSI/ASSIs (date from 2006).

	Favourable	Unfavourable recovering	Unfavourable not recovering	Destroyed or part destroyed
Fens and marshes – lowland [including purple moor grass and rush pastures]	41%	21%	37%	1%
Neutral grasslands	42%	26%	31%	1%
Acid grasslands – lowland	38%	32%	27%	3%
Calcareous grasslands – lowland	29%	40%	30%	1%

Table 5.2. Sites designated as Special Areas of Conservation (SAC) (data from 2007).

	Favourable	Unfavourable recovering	Unfavourable not recovering	Destroyed or part destroyed
Neutral grasslands	38%	25%	37%	-
Calcareous grasslands – lowland	27%	54%	17%	2%
Fens and marshes – lowland [includes purple moor grass and rush pastures]	18%	39%	43%	-
Acid grasslands – lowland	-	100%	-	-

Table 5.3. Sites designated as Special Areas of Conservation (SAC) – broken down into EU Habitats Directive Annex I types (data from 2007).

	Favourable	Unfavourable recovering	Unfavourable not recovering
H2330 Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands	100%	-	-
H6130 Calaminarian grasslands of the <i>Violetalia calaminariae</i> [most of this habitat in Scotland occurs in the uplands]	53%	31%	16%
H6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	32%	-	68%
H6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	27%	55%	18%
H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) (including H6211 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) important orchid sites) [a small part of this habitat occurs in the uplands]	1%	95%	4%
H6520 Mountain hay meadows	-	100%	-

(all tables created July 2010)

6 Protective Measures for UK Lowland Grassland Habitats

6.1 Conventions and legislation

A number of International Conventions, European Directives and pieces of National Legislation apply to UK lowland grassland habitats. Amongst the most important are:

- [The Convention on Biological Diversity](#)
- [The Convention on the Conservation of European Wildlife and Natural Habitats](#)
- [The EU Habitats Directive](#)
- [The EU Birds Directive](#)
- [The EU Water Framework Directive](#)
- [The Wildlife and Countryside Act](#) (plus amendments & supplements)

These have been instrumental in the design of the following biodiversity strategies, priority habitat lists, and site-based designations.

6.2 Biodiversity Strategies

The [UK Post-2010 Biodiversity Framework](#) sets out priorities for biodiversity conservation activities at a UK-level. Additional priorities are set out in the Country Biodiversity Strategies for England, Northern Ireland, Scotland and Wales. The main objectives of these strategies are to:

- halt and reverse previous biodiversity loss through targeted actions
- increase awareness, understanding, enjoyment and engagement with biodiversity conservation
- restore and enhance biodiversity through better planning, design and practice
- ensure biodiversity is taken into account in wider decision-making
- ensure knowledge on biodiversity is available to policy makers and practitioners

These high-level strategies largely succeeded the [UK Biodiversity Action Plan](#) (UK BAP), which operated from 1992-2012.

6.3 Priority habitats

Statutory lists of habitats of priority or principal importance for biodiversity conservation exist for [England](#), [Scotland](#), [Wales](#) and [Northern Ireland](#). These are largely based on the [UK BAP priority habitats list](#). This includes six lowland grassland habitats:

- Calaminarian grasslands
- Lowland calcareous grassland
- Lowland dry acid grassland
- Lowland meadows
- Purple moor grass and rush pastures
- Upland hay meadows

6.4 Site-based designations

Special Areas of Conservation: Special Areas of Conservation (SACs) are strictly protected sites designated under the EU Habitats Directive. They contribute to the [Natura 2000 Network](#), which consists of a series of high-quality nature reserves spread across the European Union. A total of about 90 SACs, covering an area of around 31,000 ha, have been designated to represent the seven UK lowland grassland habitat types listed under Annex I of the EU Habitats Directive. Information on individual UK SACs can be found in the [UK SAC information](#) spreadsheet. These were selected according to various [SAC selection criteria and principles](#).

Sites/Areas of Special Scientific Interest: SSSI/ASSIs are the fundamental statutory mechanism for protecting sites of ecological and geological interest in the UK. Sites of Special Scientific Interest (SSSIs) apply in England, Scotland and Wales, whilst Areas of Special Scientific Interest (ASSIs) apply in Northern Ireland. Legal responsibility for notifying and protecting such sites lies with the relevant statutory nature conservation agency in each country. The SSSI/ASSI series is intended to form a representative network covering the full range of wild flora and fauna, and especially those types and individual sites that are of greatest value to nature conservation. Detailed [Guidelines for the selection of biological SSSIs](#) are available specifically for lowland grassland habitats.

The tables below shows the extent of lowland grassland habitats in SSSIs in England and Wales only. Comparable data was not available for Northern Ireland or Scotland.

Table 6.1. SSSIs in England

	Area of habitat within SSSIs (ha)	Total area of habitat (ha)	% of habitat within SSSIs
Lowland calcareous grassland	41,015	65,567	63%
Lowland dry acid grassland	7,960	15,453	52%
Lowland meadows	13,406	36,129	37%
Purple moor grass and rush pasture	2,966	9,328	32%
Upland hay meadows	842	3,525	24%

(created Dec 2015 from data in Biodiversity 2020 England Indicators December 2014 Report)

Table 6.2. SSSIs in Wales

	Area of habitat within SSSIs (ha)	Total area of habitat (ha)	% of habitat within SSSIs
Lowland calcareous grassland	446	1,200	37%
Lowland meadow	532	1,600	33%
Lowland marshy grassland	2,992	35,300	9%
Lowland acid grassland	1,315	39,500	3%

(created July 2010 from: (i) SSSI area data from CCW Features Database April 2010; and (ii) total habitat area data from Blackstock, T.H. et al. (2010) Habitats of Wales: A Comprehensive Field Survey 1979-1997, University of Wales Press; the lowland meadow data includes only independently qualifying (and mixture) habitat, whilst the total areas for calcareous grassland and acid grassland include semi-improved habitat)

7 Management of UK Lowland Grassland Habitats

Given the threats to lowland grassland habitats, it is usually necessary to undertake some form of management to improve or maintain their condition. There are a number of sources of information to guide such action, examples of which are outlined below.

7.1 Lowland Grassland Management Handbook

The Wildlife Trusts and English Nature (now Natural England) published [The Lowland Grassland Management Handbook](#) in 1999, in conjunction with the Countryside Council for Wales (now part of Natural Resources Wales) and Scottish Natural Heritage. This provides a comprehensive guide to practical management of neutral, calcareous and acid grasslands.

7.2 Lowland Grassland Habitat Management for Invertebrates

[Buglife](#) has produced guidance for the management of UK BAP Priority Habitats for invertebrates, including: [Lowland meadows](#), [Upland hay meadows](#), [Lowland calcareous grassland](#), [Lowland dry acid grassland](#) and [Purple moor grass and rush pastures](#).

7.3 Habitat Management Search Engine

JNCC has developed a customised search engine, [Habitat Management on the Web](#), which is designed to direct users to information about how to manage UK terrestrial and freshwater habitats for biodiversity conservation.

7.4 Annex I Management Models

The European Commission has published [Management Models for Annex I Habitats](#), including some lowland grassland examples. Each document includes information on the distribution, ecological requirements of the habitat, main trends and threats. Relevant management actions and prescriptions are described in detail. Main constraints, risks and modifiers of the proposed management have been also included. Finally, relevant parameters for cost estimates, cost estimate examples and potential sources of EU financing are illustrated.

8 Resources for UK Lowland Grassland Habitats

This page lists additional sources of information on lowland grassland issues, partnerships and initiatives.

8.1 Relevant organisations

- [The Grasslands Trust](#)
- [Plantlife](#)
- [Grazing Advice Partnership \(formerly Grazing Animals Project\) \(GAP\)](#)
- [Pori, Natur a Threftadaeth \(PONT\) - Grazing, Nature and Heritage](#)
- [RSPB](#)
- [Wildlife Trusts](#)
- [National Trust](#)
- [Butterfly Conservation](#)
- [Bumblebee Conservation Trust](#)

8.2 Statutory Agencies

- [Natural Resources Wales](#) (formerly Countryside Council for Wales)
- [Natural England](#)
- [Northern Ireland Environment Agency](#)
- [Scottish Natural Heritage](#)
- [Environment Agency](#)
- [Scottish Environment Protection Agency](#)

8.3 Datasets

- [National Biodiversity Network Gateway](#)
- [Atlas of the British and Irish flora](#)
- [Nature on the Map](#)
- [Natural England GIS Digital Boundary Datasets](#)
- [Countryside Survey](#)
- [JNCC NVC distribution maps](#)
- [CCW Phase 1 habitat survey](#)

8.4 Partnership projects

- [Saving our Magnificent Meadows](#)
- [Devon Wildlife Trust Working Wetlands](#)
- [Hay Time Project – Yorkshire Dales](#)
- [Hay Time Project – Northern Pennines](#)
- [Floodplain Meadows Partnership](#)
- [Monmouthshire Meadows Group](#)
- [Anglesey Grazing Animals Partnership](#)
- [Living Landscapes – North East Wildlife Trusts](#)
- [Weald Meadows Nectar Networks](#) (formerly Weald Meadows Initiative)