
Grasslands

This statement encompasses a wide range of habitats ranging from semi-natural species-rich grasslands through to heavily managed amenity grassland. As a broad category, grasslands are ubiquitous from the lowlands up to the top of our highest mountains. However, their nature and extent vary greatly, as do the threats to each habitat and the opportunities for protecting and enhancing biodiversity within them. A large proportion of our grasslands is used for agriculture, including for grazing livestock and as a crop for silage. These habitats are considered below, but annually planted crops of grass species, such as wheat and barley, are not considered. Also not covered here are coastal grasslands, such as cliff-top grasslands and sand dunes, some of which can be especially rich for biodiversity. These are covered in the Marine and Coastal Habitats statement.

Agricultural grasslands often occur as continuous blocks of a relatively uniform habitat with a distinct boundary. Some of the more interesting (botanically) grasslands may exist as smaller pockets of habitat, such as along roadside verges, along river margins, or in other areas that have escaped agricultural intensification. In the uplands, grasslands frequently exist in a mosaic with other habitats, such as upland heathland, bog and woodland, and relevant statements should be referred to for details of these habitats.

Importance

Grasslands tend to be managed habitats, with sward composition closely related to current and/or former management. In many cases, they are successional habitats that would ultimately revert to woodland if left unmanaged. Some upland grasslands are maintained by a combination of exposure and grazing by wild deer without human intervention. By contrast, the most species-rich grasslands and meadows in the lowlands depend on particular management regimes to maintain their character.

Grasslands range in importance from sites of high value for biodiversity, supporting a wide range of plant species and associated fauna, through to sites where management is intensively focused on agricultural production or amenity and where relatively few species persist. However, almost all grassland areas hold at least some biodiversity value and, in particular, have scope for enhancements to increase their importance as habitats for wildlife.

Some important species associated with grasslands

Lapwing
Curlew
Small Heath
Sword-grass
Skylark
Meadow Pipit
Brown Hare
Barn Owl
Lesser Butterfly Orchid
Globe Flower
Waxcap fungi

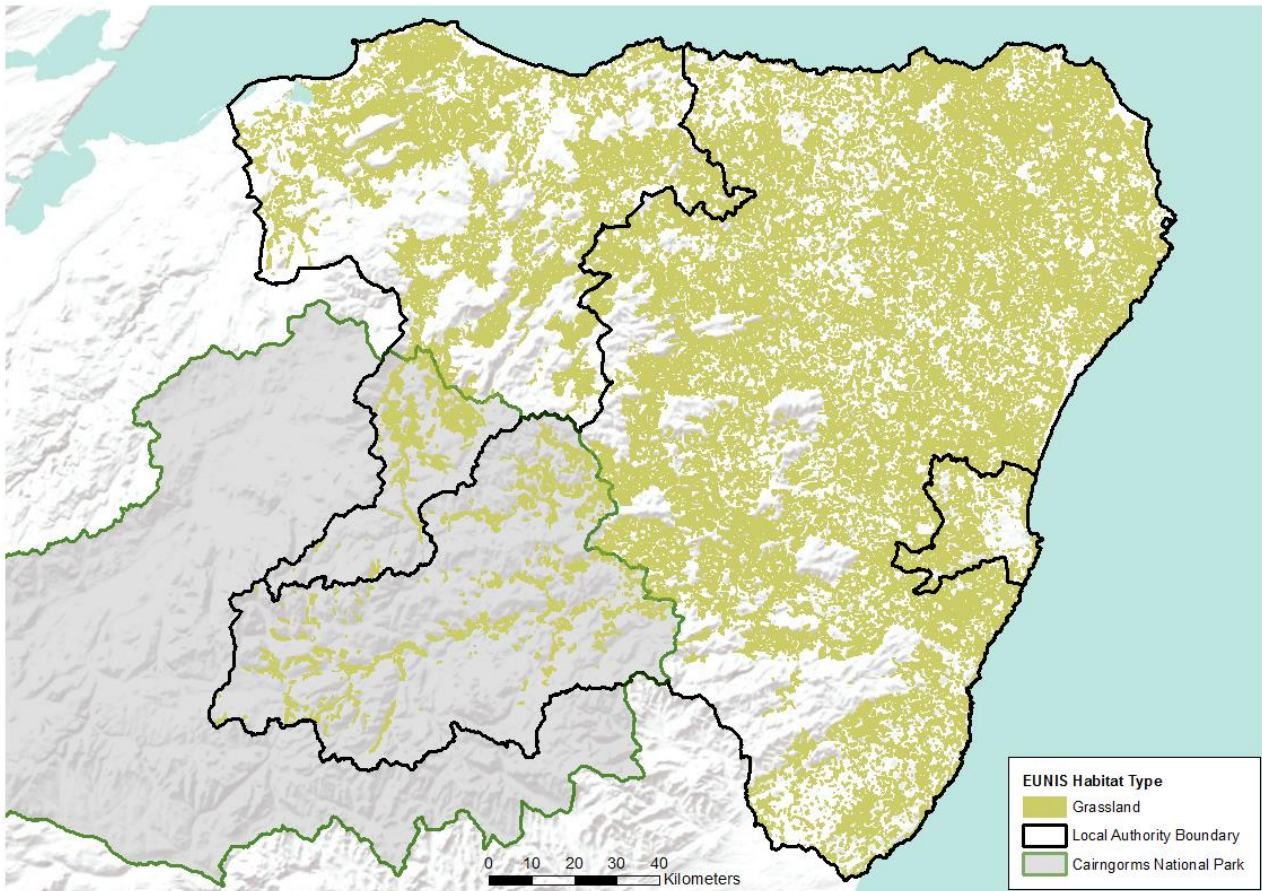




In biodiversity terms, some grasslands are valued especially for their botanical importance. Long-established lowland and upland meadows, managed with few or no nutrient inputs, support a very diverse flora. In the uplands, base-rich calcareous outcrops and flushes can provide habitats that support rare or unusual species, while areas that escape higher levels of sheep and deer grazing may support plants that struggle to persist in the wider landscape. Free-draining grasslands that have escaped high levels of nutrient inputs, but which are regularly grazed or cut, can be especially important for their fungal assemblages. Among these, some of the best known are the waxcap species.

Grasslands can host a diverse range of associated fauna. Rabbits are abundant at some sites and their grazing can have a large influence on the composition and structure of vegetation close to their warrens, though their numbers have declined in recent years. Brown Hares are associated with grasslands and agricultural crops, whilst Field Voles reach their highest densities in rank grassland areas. Floristically rich grasslands provide important resources for wild pollinators, such as bumblebees, moths and a wide range of flies. Some rare or scarce invertebrates are associated with grassland habitats. Examples include the Small Heath butterfly, which remains common in parts of North East Scotland, despite significant national declines, and the Sword-grass, a moth associated with rough grasslands that has been lost from most of the UK and now occurs primarily in North East Scotland. Some areas of grazed pasture, especially on less well-drained soils away from intensively farmed coastal lowland areas, provide valuable habitat for scarce or threatened breeding birds, such as Curlew, Lapwing and Redshank.





Influential factors

- Grasslands are largely maintained by management aimed at agricultural production
- A significant proportion of lowland grasslands have seen increased applications of fertilisers and herbicides over recent decades
- Abandonment or reduction of grazing by domestic livestock, especially on upland grasslands, can lead to scrub encroachment
- Falls in Rabbit and Brown Hare numbers can reduce grazing on some areas where botanical diversity their presence helps to maintain botanical diversity
- Grassland in amenity areas and along roadsides is often managed sub-optimally for biodiversity (e.g. by being cut too frequently or too early in the year)

Status and Management

Improved grassland

Much agricultural grassland is managed either as grazed pasture or is cut for silage as winter livestock feed. It is subject to applications of nutrients, such as Nitrogen-Phosphorus-Potassium (NPK) fertiliser, or animal manure and some of the more productive silage fields may be cut twice or more per year. These grasslands are the least botanically rich and are usually dominated by fast-growing grasses, such as Perennial Rye-grass, sometimes mixed with clovers which help to fix nitrogen into the soil. Intensively managed silage fields are usually ploughed and reseeded every five to ten years. Improved grassland used solely for grazing may also be ploughed and reseeded, though usually at less frequent intervals.



Some areas of improved, but less intensively managed, grassland are especially important for wading birds. Particularly crucial are areas where heavy soils retain substantial ground water which may, in places, lead to growth of rushes and other wetland plants. These wet grasslands can be invaluable to chicks of farmland bird, which utilise the soft wet ground to probe for invertebrates. These grasslands, which may be used for cattle grazing or for lambing in spring, are well-represented especially in the upper reaches of the major glens of the region.

Agri-environment schemes may incentivise reduced intensity of management of some improved grasslands at key times of the year. This may include removal of grazing livestock when ground-nesting birds are most vulnerable, leaving uncultivated margins around the boundary of silage fields to provide habitat for small mammals, invertebrates and their predators or cutting silage later than usual to enable successful breeding by ground-nesting bird species.

Semi-improved acid grassland

The intensity of grassland management tends to reduce as one moves away from the most fertile lowland areas. No grasslands in the region have escaped human influence, though some areas persist in the absence of targeted management. Such areas will typically be along the upper margins of enclosed farmland and up along the moorland edge, where grassland can exist in a mosaic with upland heathland. Indeed, in some cases, grasslands are seen as representing degradation of heathland, especially when dominated by Purple Moor-grass or Mat grass, which provides little grazing for livestock over most of the year. Such areas will also attract grazing by Red Deer, especially in the absence of livestock.



These grasslands are less likely to be ploughed limed or reseeded, so the soil remains less disturbed than in improved grasslands such as silage fields. Hence, they retain more carbon in their soils, especially when they lie over wetter, peaty soils. In less peaty conditions, they may have richer soil invertebrate faunas than more disturbed sites, including an abundance of earthworms.

Acid grasslands are found throughout the region as most of the underlying soils are acidic. They are relatively rare in the lowlands, persisting in fragments where more intensive agricultural management is not possible. Hence some of the better examples are where North East Scotland overlaps the Cairngorms NP at the upper end of Strathdon, around Corgarff, and in upper Deeside, into Glen Clunie.



Semi-improved calcareous and base-rich grassland

Calcareous grasslands are associated with lime/base rich rock and are relatively rare across the region, largely because of the localised nature of the necessary geological conditions. A few examples exist, including Shiel Wood Pastures below Knock Hill in Moray and Hill of Towanreef, near Rhynie, which is underlain by serpentine rocks and holds some very specialised plants. Such grasslands are often characterised by impressive shows of orchids, including Lesser Butterfly and Northern Marsh Orchid.

Like the acid grasslands in the lowlands, their persistence is as a result of local conditions making it difficult or unprofitable to intensify their management. Some of these grasslands are probably very long-established, having been developed in relatively nutrient-rich sites that attracted preferential grazing by former wild grazing animals. They were then adopted by human graziers for their livestock. The highly specialised associations of their plant and invertebrate assemblages attest to them having been established over long periods of time.

Neutral grassland

Species-rich neutral grassland is one of the most diverse as well as threatened habitats in the UK. Ninety-eight percent of the UK's our flower-rich meadows and grasslands have been lost since the 1930s. Hay meadows were a common feature across the region before agriculture was mechanised, as they supplied the winter food for livestock and for the horses which provided most of the power needed on a farm.

A few areas of upland hay meadow-type vegetation still persist in the region. These include relatively small stands along the River Dee, supporting species such as Globe Flower, Melancholy Thistle and Wood Cranesbill that aren't seen in lowland meadows and are rare across Scotland and the UK.

Lowland neutral grassland is less common but can be found at sites such as Shiel Wood Pastures and Whitehill, near Huntly. It is particularly species-rich, both in terms of grasses and herbs and, like upland hay meadows, is particularly important for many nectar and pollen-feeding insects and other invertebrates.

Amenity grassland, golf courses and roadside verges

Grasslands in the built environment are generally managed for their public amenity value. In some cases, there will be a mosaic of less and more frequently cut areas, with longer vegetation providing shelter and resources for wildlife. However, some amenity grassland is cut so frequently that its value for biodiversity is very severely compromised. There is sometimes local resistance to relaxation of mowing regimes, with such areas seen as "untidy", though other residents welcome the more natural atmosphere and increased wildlife associated with sensitively managed urban and amenity grassland. Some areas are even managed specifically with the intention of creating species-rich meadows, and there is potential to expand such initiatives even on very small areas of ground.

Golf courses contain some of the most intensively managed areas of grassland on their greens and fairways. However, most courses also have areas of less intensively managed grassland that can sometimes hold considerable biodiversity value. Golf course are often



established on relatively free-draining soils where a range of grassland species may previously have persisted. These grasslands may escape high nutrient-input regimes of agricultural grasslands and, with an appropriate mowing regime and removal of cuttings, can be quite diverse botanically. There is interest among some golf course owners in maintaining and improving biodiversity on their sites.

Roadside verges represent a substantial proportion of grassland in the region. They face particular issues with spray of salt and other particulates from the road and a requirement for vegetation not to impede motorists' views. However, verges can also offer a valuable opportunity for expansion of wildflower swards. Pilot schemes, such as that trialled near Alford in 2014, provide an evidence base on which future schemes can build. Existing verges can also provide opportunities for improving biodiversity. Optimal management will depend on the context of each site, but UK research suggests that botanical diversity can be maximised by cutting twice per year and, critically, removing cut vegetation from the site.



Opportunities for grassland habitats

- Establishment of meadows in built-up areas, in co-operation with local communities
- Sensitive management of roadside verges
- Using existing survey data to identify and prioritise those verges where there is greatest potential to improve biodiversity value
- Promote use of a seed mix optimised for local projects in roadside verges and other new grasslands
- Work with golf courses to optimise grassland management for biodiversity
- Ensure practical, fully-compensated and evidence-based species-rich grassland creation, restoration and management options are incorporated into future rural support mechanisms, such as agri-environment schemes
- Promotion of continuation of sensitive management regimes for important lowland and upland grasslands of all types



Resources

BugLife advice on grassland management in Scotland:
https://www.buglife.org.uk/sites/default/files/Grasslands_0.pdf

Lowland grassland management handbook:
<http://publications.naturalengland.org.uk/publication/35034>

Roadside verge management:
<https://environmentalevidencejournal.biomedcentral.com/articles/10.1186/s13750-018-0129-z>

For further information about how protection and enhancement of grasslands are supported across North East Scotland, see also Local Development Plans for Aberdeen City, Aberdeenshire and Moray Council - see Introduction for further details.

