

# Grassland



Gailes Marsh © Gill Smart

## Introduction

Species-rich grasslands and meadows are a highly threatened habitat in the UK. In Scotland, grassland covers about one third of the landscape, most of which is intensively managed or 'improved' to enhance productivity, and as a consequence tends to be very species-poor. The majority of the remaining grassland is 'semi-improved' having been improved in the past and is characterised by lower floral and invertebrate diversity. True unimproved and unmanaged grasslands are now rare.

## Threats

### Isolation of existing habitat

Fragmentation of existing wildlife-rich unimproved grassland can make it difficult for less mobile species to colonise.

## Grassland improvement

Drainage, ploughing and reseeding, the application of herbicides, fertilisers or slurry, and the shift from hay meadow to silage production all reduce grassland biodiversity.

### Over-grazing

Heavily-grazed grasslands tend to have low floral diversity and support fewer invertebrate species than less intensively managed land.

### Abandonment and scrub encroachment

Grasslands that have been left unmanaged can quickly become rank and lose floral and invertebrate diversity. Without management or grazing, vegetation change will result in the development of scrub and woodland which shades-out grassland wildflowers and the biodiversity that depends upon them.



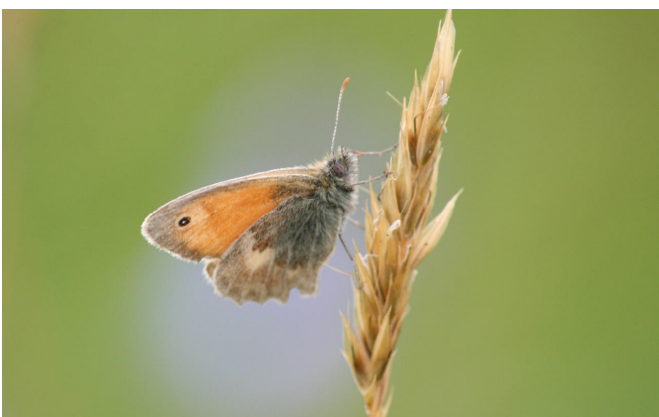
## Habitat Management

### Maintain structural diversity

When managing grassland for invertebrates, the physical structure of the sward is as important as the plant species composition, so grassland management should aim to achieve a mosaic of different sward heights. Medium to tall vegetation tends to support more invertebrate species than short swards that have been close-grazed or mown.

A varied topography with mounds and ditches can be useful for encouraging invertebrate biodiversity. An unshaded south-facing bank with short turf and bare soil can provide nesting and basking sites for solitary bees, wasps and other warmth-loving invertebrates. Many species at the northern edge of their distribution range are predominantly found on warm south-facing slopes. North and west-facing slopes receive less direct sunlight and can be cooler and damper, but also support a rich and varied invertebrate fauna.

It is important not to allow vegetational succession to take over the grassland, but some scattered scrub and tall vegetation within mosaic grasslands can be beneficial for invertebrates. Grazing by livestock can help to control scrub.



Small Heath (*Coenonympha pamphilus*) © Scott Shanks

Hedgerows with sheltered sunny edges adjoining the grassland can further enhance biodiversity. Flowering bushes such as hawthorn, blackthorn and sallow provide important nectar and pollen sources for insects such as bees and butterflies.

Sub-dividing larger sites to vary the grazing within each compartment can be beneficial and allows sections to be rotated, allowing some areas to be rested so that plants can flower and set seed.

### Grazing

Stocking levels are crucial, as intensive grazing is likely to be deleterious to invertebrate species. The type of grassland, location and the presence of species of conservation concern should all be considered when planning the grazing regime and the density of livestock.

On some grasslands, very light grazing throughout the year can help maintain a varied sward and provides a continuous supply of food for dung-feeding flies and beetles. These are in turn an important resource for birds and animals such as bats. Other grasslands may benefit from more extensive grazing during autumn/winter and are then left ungrazed during the spring and summer to allow as many species as possible to complete their lifecycle and wildflowers to set seed.

Cattle are often the best livestock for invertebrate conservation as their grazing habits tend to create a more varied sward than those of sheep or horses. Highland cattle will also graze coarser grasses than sheep and can be useful in breaking up large areas that are dominated by bracken.

Cattle and horses may also create areas of poached or bare ground that provide additional habitats for invertebrates. Regular ground disturbance helps to maintain an open sward and creates suitable sites for the germination of annual flower seeds. Bare ground and ant hills can also be an important resource for reptiles and invertebrates basking in the sun.

The presence of rabbits can be beneficial on some sites by helping to maintain areas of short vegetation and bare soil, although population explosions may occur and some form of management may become necessary to prevent over-grazing of the site.

Many invertebrates feed on livestock dung, so avermectin wormers can be highly

damaging. Treated animals should be kept off-site for at least 10 days before being turned out onto pasture of conservation significance, and slow release products should not be used.

### Cutting regimes

Sites that are unsuitable for grazing due to their size or location can be managed by mowing or strimming.

Mowing tends to produce a sward of uniform height, so to enhance structural diversity, not all of the site should be cut at once.

### Top tips

#### Varied sward structure

Maintain as diverse a sward structure as possible. Small areas with long grass, short turf and bare ground can greatly enhance biodiversity. Tussocks provide shelter for overwintering invertebrates.

#### Scattered shrubs & trees

Leave some trees and scattered flowering shrubs such as willow and hawthorn in and around the grassland to provide shelter and nectar for adult insects such as bees, hoverflies and butterflies.

#### Grazing

Cattle are often the best grazing livestock for invertebrate conservation as they create a more varied sward. Stocking density is crucial, with an under-grazed site better than an over-grazed site. Reducing livestock density during spring and summer will allow flowers to set seed and more invertebrates to complete their life cycle.

#### Cutting regimes

Where grazing is not possible, try to vary the cutting regime across the site to create different sward heights. Removal of cuttings to maintain low nutrient levels will benefit floral and invertebrate biodiversity.

#### Wetter areas

Features such as springs, seepages and seasonally inundated areas are of great value. They should not be drained, deepened into ponds or shaded by shrubs or trees.

Cutting on a rotational basis and varying the cut height and frequency across the site will help to create a varied structure which benefits invertebrates. Tussocky vegetation will provide shelter and overwintering sites for beetles and spiders.

Leaving a 1 to 3 metre fringe with taller grasses and wildflowers at field margins and near scrub will provide habitats for invertebrates, amphibians, reptiles and small mammals.

After cutting, mowings should be removed to keep nutrient levels low and maintain an open sward. This will enhance floral and invertebrate diversity.

If the site is cut annually, the timing of the cut will affect the range of invertebrates present. Many insect larvae develop in the seed heads of grasses and flowering plants, so the later the cut, the more time invertebrates will have to complete their lifecycle.

### Maintain wet flushes and springs

If water courses, springs and damp areas are present within the grassland, these should be carefully maintained as an asset. The vegetation in these areas will often be quite different, and provides important habitat for a variety of invertebrates and other wildlife.



Common green grasshopper (*Omocestus viridulus*)  
© Roger Key

Wet grasslands and meadows that are seasonally inundated are important for invertebrates such as ground beetles, while poached areas created by livestock can support rich crane-fly assemblages. All contributing towards a rich biodiversity.



## Bibliography

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## More information

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