

# Upland heathland

## Introduction

Upland heathland is characterised by the presence of dwarf shrubs covering at least 25% of an area on mineral soils or thin peat less than 0.5m deep. It is often found as part of a mosaic of habitats with blanket bog, grassland, scrub, woodland and rock habitats. As a result, the invertebrate fauna can be particularly diverse in such habitat mosaics, the fauna of the upland heath component being special.

Typical shrub species include Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*), Crowberry (*Empetrum nigrum*) and Bell heather (*Erica cinerea*). Juniper is often found on upland heaths in northern areas, whilst Western gorse (*Ulex gallii*) occurs in the south and west.



Golden-ringed dragonfly (*Cordulegaster boltonii*) © David Pryce

Wet heath is more commonly found in the north and west where the climate is damper. Here typical plant species are Cross-leaved heath (*Erica tetralix*), Deer grass (*Scirpus cespitosus*), Heather and Purple moor grass (*Molinia caerulea*), with a carpet of mosses including *Sphagnum* species.

Invertebrates associated with upland heathland include the Manchester treble bar moth (*Carsia sororata*) and the Scotch argus butterfly (*Erebia aethiops*). Insects such as crane flies (*Tipulidae*) form a major part of the diet of the chicks of many moorland birds, including the Red grouse (*Lagopus lagopus*), so have an important economic value.

## Threats

- **Overgrazing**

The result of high stocking densities of sheep or high numbers of red deer in the Scottish Highlands

- **Fire**

Environmentally damaging burning regimes causing simplification of vegetation structure, loss of lower plant assemblages and erosion of peat

- **Conversion to grassland**

Through ploughing, reseeding, liming and fertilisation

- **Afforestation**

Planting with non-native conifers

- **Drainage**

Drainage of wet heath and moorland 'gripping'

- **Bracken**

Encroachment of bracken



Minotaur beetle (*Typhaeus typhoeus*) © Roger Key

- **Development pressure**

Quarries, windfarms and access tracks, etc.

- **Public Pressure**

Increased public pressure for recreational use

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## Habitat management

### Maintain structural diversity

In upland heathland habitats it is important to maintain as much structural diversity as possible in order to provide a range of habitats for invertebrates with widely differing requirements. For example, the grassland component of an upland heathland-grassland mosaic will be the most important for leaf- and planthoppers, while seepages and habitats with impeded drainage are important for rove beetles and crane flies.

Some species such as the carabid beetle *Bembidion nigricorne* may benefit from disturbance type management, such as burning and the creation of tracks and firebreaks, all of which generate a more open heathland structure and provide areas of bare ground. Open and disturbed ground in sunny areas will provide habitat for mining bees and should not be vegetated over.

Adult insects also require pollen and nectar sources, so it is necessary to ensure there are plenty of spring flowering shrubs such as hawthorn, *Salix* and *Prunus spp.* and flower-rich areas for bumblebees and males of the Large velvet ant (*Mutilla europaea*), a scarce parasite of bumblebee (*Bombus*) *spp.*

Habitat heterogeneity with a variety of age and height structures is generally achieved through traditional rotational management regimes of cutting and burning with low-level sheep grazing. However, burning does directly destroy all insects in the burnt areas, so should not be carried out on large areas of heath at once.

Many invertebrates are dependent on the three-dimensional structure of upland shrubs and other vegetation, notably spiders.

### Retain wetter areas

Boggy pools, Sphagnum lawns, flushes, wet peat and any streams should be retained and not drained or improved, as these will provide habitat for wetland and aquatic invertebrates. These wet areas can be very fragile and are easily damaged by activities such as trampling, so disturbance should be kept to a minimum. Transitions with bog or woodland will also provide valuable sub-habitats for invertebrates and should be maintained. Such upland terrain can be especially productive of invertebrates, forming a major source of invertebrate biomass for upland birds and their young.

### Prevent excessive scrub encroachment

Excessive encroachment of scrub, bracken and coarse grasses should be prevented, but some rough vegetation areas should be retained for nesting bumblebees. Some scrub species such as willows and Juniper can be beneficial for invertebrates and it is important to achieve a balance.

Afforestation with conifers is one of the main contributors to the loss of this BAP habitat; it is accompanied by drainage and drying out of soils and nothing will grow under dense conifer shade.

### Avoid overgrazing

Moderate levels of grazing can help to keep scrub invasion in check and contribute to the maintenance of a mosaic of habitats. However, changes in grazing regimes that significantly simplify the composition and especially the structure of the vegetation are to be avoided. Stock levels must be carefully monitored to ensure that damage is not caused by erosion or loss of heather habitat, as can happen when sheep congregate at supplementary winter feeding sites or if stocking levels are too high. However, dung and carrion from sheep may support a variety of invertebrates including calypterate flies such as the RDB *Scoliocentra scutellaris*. On grouse moor, carrion from these birds may be important.

### Manage burning with care

Cutting and grazing are preferable to burning, which has a tendency to create more homogeneous stand structures and is damaging to invertebrates such as molluscs. However, this may be the best management option for some

sites. If burning is to be carried out, it should be done on a long rotation of between 10-25 years, depending on the local growth rate of the heather. Only small patches of heather should be burnt in any one year in order to create a mosaic of stands of different ages that can be recolonised by invertebrates from neighbouring vegetation.

Sensitive areas that are easily damaged and should be avoided when burning include: exposed summits and ridges and sites above 300m in the NW or above 600m in the south and east; steep slopes and scree; wet areas on thick peat; patches of tall heather and areas of Juniper or Hawthorn scrub.

### **Manage public pressure**

Disturbance by sports activities such as off-road cycling or use of motor bikes or 4-wheel drives should be minimised wherever possible. High altitude sites are very fragile and take a long time to recover from erosion or vegetation loss caused, for example, by excessive summer trampling or skiing on thin snow.

However, some invertebrates such as mining bees and ground beetles benefit from a small amount of localised disturbance of ground in upland heaths, as this creates patches of bare soil for nesting or hunting prey.

### **Maintain water bodies**

Promote the presence of clean and undisturbed streams. Naturalness of bed and banks is required. Any excessive disturbance to streams should be avoided, preserving any streamside rush or Marsh thistle stands etc.

Any work that is likely to damage marginal or riparian vegetation should be done in such a way as to leave a mixture of species and sward heights. If such work is necessary, it should be undertaken on one bank only and on short stretches such as 50m in each 200m in any one year, to ensure continuity of habitat.

For a more comprehensive list of species associated with this habitat, please see the download list.

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