

Lowland heathland

Introduction

Lowland heathland communities are found below 300m and are characterised by sandy mineral soils of low nutrient status. The dominant plant species are heather, gorse and cross-leaved heath, but many heathlands have a mosaic of habitats including scattered trees and scrub and areas of bare ground as well as wet heath, mire and open water. Bryophytes and lichens are also important components of the heathland vegetation.

Heathland is a very important invertebrate habitat, supporting many rare British species that are at the edge of their European range. Species found on heathland include the Heath grasshopper (*Chorthippus vagans*), the Potter wasp (*Eumenes coarctatus*), the Ladybird spider (*Ereseus sandaliatus*) and the Dusky cockroach (*Ectobius lapponicus*) as well as the Silver-studded blue butterfly (*Plebejus argus*) and 3 species of dragonfly which are confined to this habitat.

Heath & Acid Grassland - Cavenham Heath © Roger Key

Threats

- Encroachment of trees and scrub as a result of decline in traditional management
- Damage from accidental or deliberate fires
- Development pressure
- Inappropriate surfacing of paths and tracks
- Management that suppresses appropriate disturbance of soils
- Uniformity of age classes of heather and deciduous scrub
- Inappropriate grazing regimes
- Failure to understand and allow for habitat mosaic relationships, including aspect
- Loss of verge heath (by road widening etc)
- Drainage of wet heath, bog and heathland carr, and ditching of streams
- Agricultural improvement or afforestation
- Isolation and fragmentation of habitat
- Nutrient enrichment from agricultural practices

Habitat management

Habitat management should maintain a pattern of traditional heath management, attempting to retain a mosaic of vegetation types. Without this type of management heaths can rapidly be colonised by bracken, scrub or woodland, or become so uniform in age class that many species lose their niche.

Maintain a diverse vegetational structure

The most important management aim should be to maintain structural diversity in the vegetation to provide a wide range of habitat niches for invertebrates. This should include:

- **Bare ground**

Bare ground is important for a range of insects which use open areas for nesting, chasing after prey and basking.

The sandy soils of lowland heaths provide warm, dry conditions that favour warmth-loving invertebrates and facilitate burrowing. Any open south-facing bare slopes can provide valuable nesting sites for colonies of burrowing solitary bees and wasps. Bare, sandy ground on heathland can be created by scraping shallow pits or even bulldozing the vegetation away and creating mounds or banks with the material removed. On a smaller scale, hand clearance of vegetation in small patches across a site can provide useful invertebrate habitat. As bare ground is easily colonized by seedling birch and pine, it is essential to ensure that any sizeable clearance is regularly repeated or the area is subsequently managed to ensure colonization by heather rather than trees or scrub. Hard-packed sand such as that found along paths can be very valuable habitat for solitary bees and wasps to construct their nests.

- **Areas dominated by mosses and lichens**

The endangered ladybird spider is found on dry sandy heathland with bare and lichen covered areas, where it constructs its burrows.

- **Low herbs on disturbed ground**

Annual and ruderal plants will provide some pollen and nectar for adult insects in a habitat which is often poor in nectar-bearing flowers when heather is not in flower. The sparse vegetation will also not overshadow the ground, allowing it to warm up in the sun.

- **Grasses**

A range of grass habitats should be ensured from long, tussocky vegetation to very short turf in dry conditions. Certain types of arid dry heath are rare internationally and can be of high importance for invertebrates.

- **Dwarf shrubs of a range of ages**

These provide firm structures for web-spinning spiders and shelter for invertebrates, especially for those overwintering. Stands of mature heather should be retained on site: the Lynx spider (*Oxyopes heterophthalmus*) is an example of a specialist on very mature heather. Silver-studded blue and other specialists need young heather, but the maximum biodiversity tends to be associated with the main growth phase.

- **Wet heath and mire**

Wet heath often has plenty of cross-leaved heath, even if heather is present, or purple moor-grass may be dominant. This habitat supports a very different invertebrate community from dry heather or dry grass heath. The shallow peat may only be saturated in the winter or all through the year, again with different assemblages of invertebrates. Patches of bare moist peat can be important for such species as the bug *Micracanthia marginalis* and the predatory fly *Hydrophorus nebulosus*, the latter occurring where a fine veneer of red algae is present.

Wet mire should ideally have a range of vegetation including low plants such as *Sphagnum* and sundews (*Drosera* spp.), taller rushes, sedges and grasses, low shrubs such as bog myrtle and sallow scrub or carr. Grazing and turf cutting are the best management options to maintain open conditions, but some carr or wet woodland should be retained if it is long-established since special faunas occur here. Pools and areas of boggy ground should never be deepened or drained, as this may break through an underlying iron pan, ultimately drying the area and resulting in loss of the habitat. Excessive water abstraction leading to loss of meres and ponds and drying out of wet heath and mire should also be prevented.

- **Scattered shrubs and trees**

Scrub species such as broom, gorse and birch support a great number of invertebrates on heathlands, so scrub is an important component of the heathland mosaic. It also offers shelter and structural diversity and spring-flowering shrubs provide nectar and pollen. However, it is necessary to ensure that excessive scrub encroachment is kept in check to avoid the shading out of other heathland communities and maintain open conditions. Non-native species such as rhododendron can be very invasive and should be removed.

Aspen on heathland supports an important invertebrate fauna here that differs from that in woodlands.

Dead wood of all ages should be retained, in particular birch (*Betula* sp.), and continuity of this resource ensured. Piles of birch logs left after selective clearance of invading trees and scrub can provide habitat for the crane fly *Tanyptera nigricornis*.

- **Flower-rich areas**

Patches of nutrient-rich ground or roadside verges with open nectar-bearing flowers such as umbellifers, ragwort and thistles can provide an important food source for foraging insects. The flora is often different and richer in species, providing a source of nectar when there is none on the true heath, and supporting a different range of plant eating insects and associate predators, including spiders.

Marginal heath areas may also have extra types of flowering scrub, such as sloe, hawthorn and bramble which can provide invaluable nectar sources as well as being especially favourable to other faunas that like heathy situations.

- **Transitions to adjoining habitats**

Open structured woods on the fringes of heathland is a valuable habitat, supporting wood ants on which the metallic green chafer *Cetonia cuprea* depends. Woodland edge fringing heathland also supports Notable crane fly species.

- **Streams or rivers**

Water courses add to the diversity of any site and should be managed sympathetically; canalisation and dredging of heathland streams is very damaging to species such as the Southern damselfly, and risks draining wet heath and carr to the detriment of special faunas.

Ensure appropriate grazing levels

Grazing is the preferred management option for maintaining a mosaic of heathland structure, but it is important to ensure appropriate stocking levels as overgrazing may reduce the structural diversity and species richness of the vegetation and hence the overall quality of the invertebrate habitat. The grazing habits of cattle tend to produce a more varied vegetation structure than that in sheep-grazed areas and their greater weight will suppress bracken growth and provide areas of disturbed ground. However, ungrazed areas of mature heather should be fenced off to avoid damage. While bracken can be a problem on smaller heaths, it does support some rare sawflies and flies, so areas of bracken, both shaded and in the open, should be retained.

Grazed sites can also support a sizeable dung-associated fauna, but the use of avermectin drugs to treat stock is very damaging to these invertebrates, so alternative treatment should be sought. At Aylesbeare Common the population of the Priority species Southern damselfly (*Coenagrion mercuriale*) increased after cattle grazing was

introduced. This may be due to the alteration of vegetation structure, creation of a mosaic of small pools through poaching and even local enrichment of the water by their droppings.

Burning

Burning on lowland heathland is a less favourable method of management than low intensity grazing combined with rotational cutting and scraping of the soil surface to create exposures. The latter form of management will be beneficial to most invertebrate species and a more heterogeneous habitat can be created. However, on larger heathlands burning can be the most effective form of management, especially when combined with grazing. On dry heath one of the advantages of fire, if it is hot enough for a deep burn, is that it burns away the humus layer that builds up under heather, thus exposing the mineral soil that is essential to many heathland invertebrates. Mowing will not achieve this. Many species occur at certain periods after vegetation clearance and these can provide a useful indication of the success of such schemes in creating the desired habitat structure.

Burning on lowland heaths does not have the same long tradition as on upland moorland and it should not be introduced on sites with no history of this type of management. If burning is to be used, it should only be carried out in the winter months and in small patches on a long rotation (e.g. 20 years) to ensure that mature stages of heathland are maintained. Ideally, provision for some 40-year rotation patches should be made. On heaths close to urban areas or those used extensively for recreation, fires may start by accident or as a result of vandalism and can be highly damaging. Fire breaks should be set up as a precautionary measure.

Manage public pressure

Horse riding and motorcycle activity on open heaths can cause extensive damage and should be controlled on heathland sites. Horses' hooves churn up sandy heathland tracks, making the habitat unsuitable for invertebrates such as the Heath tiger beetle (*Cicindela sylvatica*) and mining bees. Moderate recreational pressure such as that from walkers can be a management tool in helping to maintain sandy paths/areas, but heather is very susceptible to death from excessive trampling. Soil enrichment, especially from dog faeces and urine, can promote lush vegetation beside paths and thus ruin the critical natural interface between vegetation and open sand.

Rather than accept bare ground along paths, on some heaths surfaces have been 'improved' by planting hard-wearing recreational grasses or importing aggregates to cover the sand surface. Such measures can look very unnatural and are disastrous for the bare sand fauna. In this respect, some erosion scars can actually be important places for nesting bees, yet are very susceptible to erosion control which destroys the invertebrate interest.

Prevent scrub invasion and vegetational succession

Scrub control is an important element of heathland management and should focus on clearance of dense thickets followed by scraping of leaf litter layer and thinning of more scattered scrub. Rhododendron should be eradicated if possible. The ultimate aim should be to achieve a mosaic of different heathland types with scattered scrub. Bracken should also be controlled through grazing, cutting or application of Asulox.

Find out more about [habitat management](#) of lowland heathland in the Publications pages.

BAP species associated with lowland heathland:

Ruby-tailed wasp (*Chrysis fulgida*)
Dark guest ant (*Anergates atratulus*)
Black bog ant (*Formica candida*)
Narrow-headed ant (*Formica exsecta*)
Red barbed ant (*Formica rufibarbis*)
a spider-hunting wasp *Homonotus sanguinolentus*
Purbeck mason wasp (*Pseudepipona herrichii*)
5-banded weevil wasp (*Cerceris quinquefasciata*)
a mining bee *Andrena ferox*



Banded mining bee (*Andrena gravida*)
a cuckoo bee *Nomada ferruginata*
Shrill carder bee (*Bombus sylvarum*)
a ground beetle *Pterostichus kugelanni*
Edmond's ground beetle (*Tachys edmondsi*)
a ground beetle *Amara famelica*
Heath tiger beetle (*Cicindela sylvatica*)
a weevil *Procas granulicollis*
Hazel pot beetle (*Cryptocephalus coryli*)
10 spotted pot beetle (*Cryptocephalus decemmaculatus*)
Hornet robberfly (*Asilus crabroniformis*)
Heath bee-fly (*Bombylius minor*)
Mottled bee-fly (*Thyridanthrax fenestratus*)
Wart-biter bush cricket (*Decticus verrucivorus*)
Large marsh grasshopper (*Stethophyma grossum*)
Southern damselfly (*Coenagrion mercuriale*)
Ladybird spider (*Eresus sandaliatus*)
Tufted featherleg spider (*Uloborus walckenaerius*)

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

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