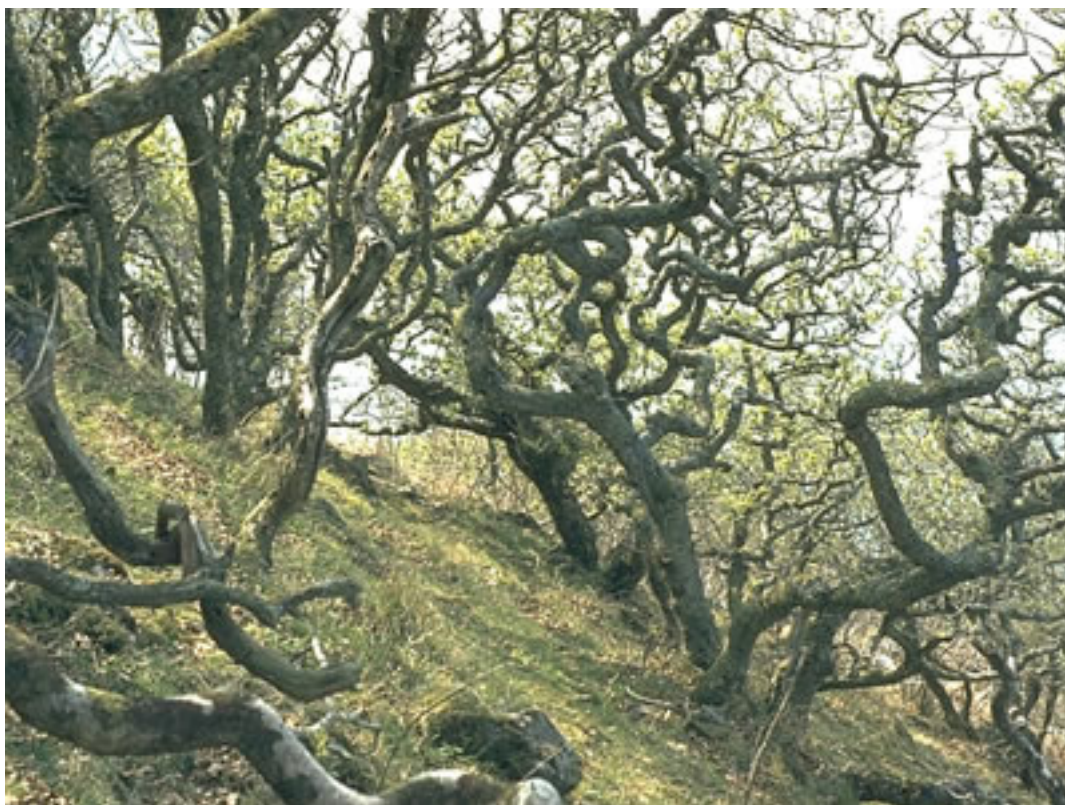


Upland oakwood

Introduction

Upland oakwoods are characterised by a predominance of oak (most commonly sessile, but locally pedunculate) and birch in the canopy, with varying amounts of holly, rowan and hazel as the main understorey species. The range of plants found in the ground layer varies according to the underlying soil type and degree of grazing from bluebell-bramble-fern communities through grass and bracken dominated ones to heathy moss-dominated areas. Many oakwoods also contain areas of more alkaline soils, often along streams or towards the base of slopes where much richer communities occur. Elsewhere small alder stands may occur or peaty hollows covered by bog mosses *Sphagnum* spp. These elements are an important part of the upland oakwood system. The ferns, mosses and liverworts found in the most oceanic of these woods are particularly rich; many also hold very diverse lichen communities.



WesternOakWoodland

The invertebrate communities support a range of Nationally scarce species including the Blue ground beetle (*Carabus intricatus*), long-horned beetle *Anoplodera sexguttata* and, in some Scottish sites, the Chequered skipper butterfly (*Carterocephalus palaemon*).

Threats

- **Over-grazing**

Over-grazing by sheep and deer throughout much of the range of the woods

- **Non-native plant species**

Invasion by species such as rhododendron, which shades out the ground layers and eliminates much of the conservation interest

- **Development**

Pressures such as new roads and quarrying

- **Air pollution**

Effects of air pollution, especially on lichen and bryophyte communities

- **Water pollution**

Pollution of streams, including from mines and quarries

- **Poor management**

In some cases, unsympathetic forest management, where felling rates, choice of broadleaf species planted, or methods of working do not yet reflect published guidelines

- **Drainage**

Ditching and other drainage measures

Habitat management

Maintain a varied structure

Woodlands with structural diversity will provide a much richer invertebrate habitat than stands of trees of uniform age and height. A varied vertical structure with trees of different ages offers a greater range of niches for invertebrates associated with upland oakwoods. It is important not only to retain mature oak trees with leafy crowns (particularly important for the lacewing *Nothochrysa fulviceps*), but also to ensure that there will be a number of trees to ensure succession and maintain continuity of habitat availability. A variety of aspects and degrees of exposure and shading should also be retained to provide a range of microclimates to cater for insects with different requirements, such as tree- and plant-hopper species. Unfortunately, non-intervention is now rarely likely to provide adequate diversity in the majority of surviving British woodlands, so active management is needed.

Retain a range of dead wood

Dead wood is an essential component of woodland ecosystems, but one that is often overlooked and cleared away as unsightly or on the grounds of safety or neatness. As a result, invertebrate species that rely on dead wood are now some of the most threatened in Britain. It is vital to retain a variety of dead wood habitats within the woodland. This includes standing trees, dead branches, stems and snags on living trees and fallen branches and stumps. A range of dead wood at all stages of decay will provide a range of habitats for more specialist *saproxyllic* (dead wood) invertebrates.

Fallen dead wood on the ground provides shelter and overwintering sites for adult ground beetles and the RDB Upland pill-woodlouse (*Armadillidium pictum*), as well as essential habitat for the developing larvae of saproxyllic invertebrates such as many rove and longhorn beetles. Wherever possible, fallen trees and branches should be allowed to lie where they land, but if they need to be cleared for safety or access reasons, then the wood should not be moved far from its original position. Cutting fallen timber into logs to place in log piles can be damaging to longhorn beetles such as *Anoplodera sexguttata*, *Microrrhagus pygmaeus* and *Saperda scalaris* whose larvae develop in dead branches and stems. Many invertebrates live beneath the bark layer, so this should not be stripped. Any sound cut timber that is to be removed from the woodland should not be left in situ for any length of time, as invertebrates will quickly colonise and may then be lost when the wood is taken away.

Retention of standing dead wood is vital for invertebrates such as woodlice. Decaying branchwood supports a

number of Nationally scarce species of rove beetles, while fungal and epiphytic growth on both sound and decaying timber provides subhabitat for species such as the rove beetle *Leptusa ruficollis*. Fungal growth such as bracket fungi will also support a range of invertebrates; trees with such growths should be retained. Fungal action is also responsible for producing heart rot in trees, which provides an extremely important habitat niche for saproxylic invertebrates. Trees with heart rot can survive for many years as it only affects the bulky heartwood and the living tissues are not killed. Such forms of decay are an essential part of the woodland system, releasing nutrients and decreasing the bulk of ancient trees, making them less susceptible to wind-throw.

Fallen dead wood on groundwater seepages and in streams supports a varied fauna of flies, including BAP Priority *Lipsothrix* craneflies.

Consider light grazing

Woodland grazing maintains an open ground layer, which may be beneficial to species such as the ground beetle (*Calosoma inquisitor*) and long-horn beetle (*Anoplodera sexguttata*). Light stocking is preferable if managing for the rare Blue ground beetle (*Carabus intricatus*), as the sparse shrub or field layer of pasture woodland appears to be an important requirement. The dung of larger herbivores such as deer, horses and cattle is essential for dung beetles such as *Aphodius fasciatus*, so erecting deer fences around woodlands where these beetles are found would be detrimental.

However, grazing could be highly damaging to some communities, so it is important to consider the potential impact of the introduction of livestock to any woodland. Each site should be considered on an individual basis.

Maintain open areas

Ride management should aim to maintain open sunny conditions. Open rides and glades provide the warmth necessary for some species and also allow plants to flower, including flowering shrubs, providing nectar and pollen for adult insects to feed on. Rides should be managed in small sections of, for example, 50m at a time, as cutting an entire ride at once could result in local extinction of the species that occur in those situations. Any long-established glades should be maintained where possible, and not be planted up with new trees.

Maintain species composition

The existing oak canopy should be retained, and planting with conifers prevented, as this has led to the extinction of some British populations of the Blue ground beetle (*Carabus intricatus*). Conifers create very different habitats from those naturally found in upland oakwoods. Where present, any birch component should be retained and increased for the conservation of the lacewing *Hemerobius perelegans*. Native flowering shrub species such as hawthorn are of benefit to many invertebrates, proving a nectar source for a large number of adult insects whose larvae live in dead wood. Sallows are also of high value, for catkin visiting insects in spring and for foliage feeders.

Retain wet areas and watercourses

Although wet areas within woodlands are often regarded as a nuisance, they are extremely important invertebrate habitats and should not be drained. Seepages, springs and streams should never be piped or canalised, as they may support Nationally scarce rove beetles such as *Lesteva hansenii* and *Quedius* species as well as craneflies and other interesting invertebrates. Areas immediately adjacent to water bodies may support specialist invertebrate species. For example, saturated moss and surfaces constantly kept wet by waterfalls or rock seepages may support populations of the rove beetles *Stenus guynemeri* and *Dianous coerulescens*. Damage can be caused to these areas by overgrazing and trampling, and any disruption of the hydrology is likely to be detrimental. Wherever possible, any springs or seepages should be bridged where they are crossed by footpaths if an alternative access route cannot be found.

If a river or stream runs through the woodland, 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. Such work should be undertaken on one bank only and on short stretches such as 50m in each 200m in any one year. This will ensure a continuity of habitat for any mayfly and stonefly species present. Any dead wood that has fallen into the water should be left in situ as this also supports a specialist invertebrate community.



BAP species associated with upland oakwood:

Blue ground beetle (*Carabus intricatus*)

a crane fly *Lipsothrix errans*

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

Source URL: <https://www.buglife.org.uk/advice-and-publications/advice-on-managing-bap-habitats/upland-oakwood>