SCOTTISH INVERTEBRATE HABITAT MANAGEMENT

Woodland

Mugdock Wood © Scott Shanks

Introduction

Scotland is often thought of as a land of mountains, deep lochs and ancient forests, however centuries of deforestation and grazing have taken their toll. Today, only 1% of our landscape contains remnants of ancient woodland that was once widespread.

Since the Forestry Commission was established in 1919, woodland coverage has increased from 4% of the landscape to the current total of 15%, however much of this increase is non-native conifer plantation. In recent decades broadleaf woodland coverage has increased, while the coverage of conifer plantation has began to decline.

Woodlands are one of the richest and most diverse habitats for invertebrates, with a large number of woodland-specialist species. Dead wood is an essential component of woodland ecosystems, but one that is often overlooked and cleared away as unsightly. As a result, invertebrate species that rely on dead wood are now among the most threatened in Britain. Managing woodland for invertebrates also benefits many other organisms and is the key to increasing woodland biodiversity.

Threats

Deforestation and fragmentation

Clearance for agriculture, roads, quarries and other developments reduces woodland cover. Isolation of existing native and semi-natural woodland makes it difficult for less mobile species to colonise and can lead to localised species extinctions.

Intensive Forestry / Coniferisation

Intensive forestry management has seen the rise of vast non-native conifer plantations. These monocultures tend to lack structural diversity and have little understorey vegetation which lowers their value for invertebrates and other wildlife.

Grazing and woodland regeneration

Grazing and damage caused by deer and sheep can prevent natural woodland regeneration and can be an expensive problem for anyone planting a new woodland. In certain circumstances grazing can however be beneficial in keeping clearings open.

Abandonment and poor management

Abandonment of traditional management practices leading to the scrubbing over of glades and clearings, invasion of non-native shrub species such as rhododendron and the loss of ground flora will affect many invertebrate species

Unsympathetic forest management such as removing ancient trees and deadwood, and the destruction/drainage of ponds and seepages also reduces biodiversity.

Orange ladybird (*Halyzia 16-guttata*) © Craig Macadam

Habitat Management

Native tree species

Encourage native species such as oak, ash, alder, birch, elm, willow and Scots pine, each of which support a diversity of invertebrate species. Thinning out non-native species such as sycamores and beeches and shrubs such as rhododendrons will also benefit invertebrates species.

Varied structure and age

A varied age and height structure will help maximise the number of habitat niches for invertebrates within the woodland.

Old trees with a well developed moss and lichen cover are valuable for the variety of species that they can support. Ensure that there is a supply of young trees to replace older ones as they die. If possible, rotational coppicing will help maintain a variety of habitats suitable for invertebrates. Climbing plants and a diverse range of native plant species in the understorey will also enhance the biodiversity of the site.

At the edges of woodlands and clearings try to create a gradual transition from trees through shrubs down to tall grasses and flowering plants to maximise niches for invertebrates and biodiversity.

Dead wood

Standing dead stumps, fallen tree trunks and branches support a large range of invertebrate species, with some species only found on standing dead wood. Where possible leave dead branches and stumps *in situ* unless there are public safety concerns. A continuous supply of deadwood is required as conditions that support certain 'saproxylic' species may only be present for a year or two while a stump or log decays. If fallen wood is to be moved to log piles, leaving bark and small branches intact and situating them in a variety of conditions from direct sunlight to deep shade will help support a large range of invertebrates. Dead wood in direct sunlight will provide nesting sites for solitary wasps which prey on caterpillars and aphids. Rot holes, sap runs, fungal fruiting bodies and all forms of timber decay have invertebrates associated with them and should be retained.

Climbers and understorey shrubs

The trees and fallen wood are not the only important components within a woodland. A diverse understorey of native shrubs such as hazel, hawthorn and brambles will enhance the biodiversity of the site by providing shelter and food for further invertebrate species. Care should be taken that scrub does not take over the entire woodland and shade out specialist ground flora and invertebrates that rely on it.

Climbing plants such as ivy and honeysuckle

should be encouraged as they provide food and shelter for a range of invertebrates. Trees covered in Ivy are unlikely to be damaged by it.

Ground Layer

A diverse ground layer of grasses and flowering plants will provide shelter, nectar and food plants for a range of invertebrates. Patches of bare ground, log piles and rock piles will provide ideal basking spots and shelter for invertebrates and reptiles. The key is ensuring a mosaic of light and shade across the woodland, which will promote greatest diversity in the ground flora and associated invertebrates

Top tips

Native Species
Encouraging native tree species of different ages and heights will enhance the biodiversity value of a woodland. Old moss and lichen-covered trees are full of life!

Understorey vegetation
Ensuring a diverse understorey structure with native shrubs, climbers, grasses and wildflowers will increase biodiversity.

Dead wood
A large proportion of the biodiversity within a woodland is directly dependent upon fallen and standing dead wood. If possible, leave fallen wood where it lands, or create log piles in different areas, exposed to a range of sunshine and shade, dry and damp conditions to increase the range of micro-habitats available for saproxylic species.

Open rides and clearings
Maintain open glades and wide sunny rides by periodic scrub removal to provide warm, sheltered flower-rich areas where butterflies and bees can feed and breed.

Wetter areas
Features such as springs, pools, seepages, and seasonally inundated areas are of great value for added habitat diversity. Fallen trees and branches decaying in streams and seepages should be retained if possible for the many invertebrates they support.

Ponds and wet areas

Streams, springs, ponds and regularly inundated areas should be maintained as they support a wide range of terrestrial and aquatic specialist species. Wet woodland or 'carr' is a Biodiversity Action Plan priority habitat that is increasingly rare due to clearance and drainage. Carr habitat supports a large range of specialist species, many of which are now rare due to loss of this habitat.

Trees overhanging waterways provide a ready supply of leaves and fallen wood which support a wide range of aquatic invertebrates. A mixture of shaded and open sunny banks will provide the largest diversity of habitats for invertebrates.

Open areas and clearings

Clearings and wide rides with sunny flower-rich margins provide warm sheltered areas where invertebrates such as bees, butterflies and hoverflies can feed and breed. Periodic scrub removal and rotational coppicing may be required to maintain open glades that are free of scrub, however not all of the woodland should be cleared of scrub or coppiced at the same time.

Batman hoverfly (*Myathropa florea*) © Ben Hamers

Ground flora may bloom dramatically in the first few years following scrub clearance, providing food and suitable habitats for woodland specialists until eventually scrub takes over once more.

Creating a network of clearings and glades along a ride or way-leave that are cleared of scrub in successive years will ensure a good mixture of habitats with different stages of regeneration and enhance biodiversity.

Bibliography

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More information

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