

## Carr and woodland seepage invertebrate assemblage

**Description:** This invertebrate assemblage is found in areas of wet woodland where the substrate is permanently saturated, but is also found in drier woodland types where there are small pockets of wet ground, or around streams and flushes, the latter often being spring-fed. Riparian woodlands lying in the floodplain of larger streams and rivers are also covered here. Generally, the species that occur here are moisture-loving inhabitants of permanently or temporarily very wet peat, mud and coarser riverine sediments, saturated litter, or mats of wetland plants such as opposite-leaved golden-saxifrage. Aquatic invertebrates characteristic of very small streams and seepages within woodlands are included, but those of larger streams and rivers are beyond the scope of this document. The majority of the invertebrate species occurring in this habitat feature require high humidity, and are found in at least partially shaded sites. As a general rule, northern and/or Atlantic-distributed species require a closed canopy, and in such sites, limited management intervention is required, but southern-distributed invertebrates favour seepages where there is at least some open space, and may require management inputs.



© Ground beetle, John Walters

**Areas and status:** The largest expanses of this habitat feature are found in wet woodland, but small patches and linear strips are frequent in all kinds of woodland, especially in the floodplain of larger streams and rivers. There has been a considerable loss of ancient carr woodland in lowland river valleys, but in upland areas it seems likely that the extent and quality of this habitat feature has not changed significantly. Cessation of grazing and other forms of management in open wetlands that are of marginal agricultural value has led to a significant expansion of secondary wet woodland in some places (eg. marshy grasslands on the Culm Measures in Devon and Cornwall).

**Woodland type:** All.

### Invertebrate interest:

- Saturated peat and mud in shaded wet woodland supports an extremely diverse assemblage of flies, amongst which crane flies are prominent. Especially diverse assemblages may be found in sites where groundwater is relatively calcareous, but acidic carr also has specialities. Sites in northern and western Britain have a distinctive 'upland' assemblage that includes many with high conservation status
- Wooded river or stream margins and riparian woodland support an exceptionally rich invertebrate fauna that includes the silver-banded snipe fly and many crane flies, dance flies and long-headed flies. Other insect orders, such as the ground beetles and rove beetles also have many specialities of exposed sediments at the edge of the water
- Litter and golden-saxifrages growing in and around seepages in upland broadleaved woodland have populations of a number of terrestrial slugs and snails such as the Point Snail, Plaited Snail, English Chrysalis Snail and Greater Pellucid Glass Snail. These are all species with an extreme Atlantic distribution, which have a major part of their world populations in Britain and Ireland
- Lowland floodplain woodlands have a rich ground-active beetle fauna with important species such as the ground beetles *Agonum scitulum* and *Batenus livens*
- Calcareous woodland springs and seepages, especially those where there is tufa deposition, may have populations of important soldier flies such as the Dark-winged soldier and Twin-spotted Major as well as a number of scarce crane flies
- The Swamp Lookout Spider is found in bog-mosses under trees in acidic wetlands
- Shallow spring-fed seepages in woodland have a specialised invertebrate fauna that includes a number of important aquatic invertebrates including the caddis-fly *Adicella filicornis* and a number of marsh beetles in the genus *Elodes*. Cool water at springheads in southern English woods may have 'relict' populations of northern species (eg. the water beetle *Hydroporus longicornis* and the flatworm *Crenobia alpina*)

### Potential habitat management issues associated with decline:

- Disturbance of wet ground and springheads during woodland management
- Excessive poaching by cattle and other agricultural stock
- Planting of conifers and other inappropriate species in and around springs, seepages and wet ground
- Opening up of the canopy in sites where there are important shade-loving invertebrate species
- Lack of grazing and woodland management in sites with species requiring some open space
- Past losses of ancient wet woods in the floodplain of lowland rivers

- Clearing of dead wood and other forms of artificial management along wooded river and stream margins
- Drainage of wet woodland of all types
- Spread of Himalayan balsam and Japanese knotweed in riparian woodlands
- Climate change may be detrimental to northern and/or Atlantic-distributed species
- Habitat fragmentation and loss of connectivity leading to isolation of surviving populations

Potential habitat management solutions	
<i>Prescription</i>	
Limited intervention	In general, the invertebrate fauna of wet woodland sites, especially those in upland situations, or on northerly aspects, requires moist, shaded conditions and limited management intervention (other than the removal of any invasive non-native species such as Himalayan balsam and Japanese knotweed will usually be most appropriate. In lowland carr sites, or where the site has a sunnier aspect, more active management, such as coppicing, clear-felling and thinning may be required.
Lowland floodplain woods	These sites are particularly rare and valuable for wet woodland invertebrates, and opportunities for the creation of new areas, by new planting or natural regeneration, should be investigated, especially where they lie adjacent or close to existing sites with a known invertebrate interest.
Streams, springs and seepages	Ensure that springs and seepages, and the wet ground around them is disturbed as little as possible by woodland management operations. Re-establish natural hydrology by blocking-up old ditches where present.
Woodland edge	Maintain graded margins with site-native trees and shrubs on both external wood-edges using similar management techniques to those outlined for 2-zone glades and rides.
Thinning/Selective felling: light	This may be appropriate where a relatively shade-loving wet woodland assemblage is present, but regeneration of the tree and shrub layer is also required. Minimise ground disturbance. Heavy thinning or small selective fells may be necessary in order to maintain suitable conditions for species favouring rather open seepages( as a rule for calcareous woodland seepages $\leq 60\%$ shade and for other types $\leq 80\%$ shade).
Rotational coppice (<12yr rotation) and Rotational coppice (>12 yr rotation)	Where appropriate to the invertebrate interest, create small coppice coupes (20x20m to 30x30m) on short (<12 yrs) or longer rotations (>12 yrs). Many stands of wet woodland are small, and where possible no more than half of the total wet woodland area should be coppiced at one time. Minimise ground disturbance.
Small group clear-fell	Clear-fell coupes (20x20m to 40x40m) on 25-40 yrs cycles. Many stands of wet woodland are small, and where possible no more than half of the total wet woodland area should be clear-felled at one time. Re-stock with mixed site-native broadleaves, including sub-canopy 'pioneers' such as birch, alder, aspen and willows where appropriate. Minimise ground disturbance.
Plantations	In plantations, manage springs, seepages and permanently wet ground as for other woodland habitats. Clearance of small areas of non-native trees (especially conifers) from around springs, seepages and wet ground, and their subsequent natural regeneration/re-stocking with appropriate site-native trees and shrubs may yield disproportionate benefits to the invertebrate fauna.
Grazing	Where livestock or deer are causing excessive poaching or browsing, either reduce grazing or erect stock-proof/deer-proof enclosures.
Grazing	Light grazing of some wet woodlands such as those with calcareous tufa seepages, especially in areas where the canopy is more open, may be necessary in order to control coarse vegetation, and encourage a diverse ground layer with much bare ground.
Riparian zone	Leave dead wood and flood litter along wooded stream margins unless there are compelling reasons for its removal. Maintain or restore all natural processes in the riparian zone.