



Braemar Reservoir © Eileen & Harry Bickerstaff

# Scotland's Special Habitats

Scotland supports a diverse range of important and special habitats that include globally important grasslands, boreal forest, freshwater, montane and peatland. These habitats are home to a unique assemblage of invertebrates, some of which are only found in Scotland in the UK. This leaflet provides information on some of our special habitats and why they are important.

## WOODLAND

The composition of Scottish woodlands is unique in Europe. Scotland's woodlands of Scots pine (*Pinus sylvestris*), Aspen (*Populus tremula*) and birch (*Betula* species) represent the westernmost examples of the boreal forest, that stretches across most of northern Europe and extends east across North America to the Pacific Ocean. Other tree species common within Scotland's boreal forests, but have been introduced include European larch (*Larix decidua*) and spruce (*Picea* species).

In places, the structure of Scotland's ancient pine forests is likewise unique. Many large veteran trees stand in open airy woodland. Unlike Scandinavia, where forestry practices have removed larger and



Bluebells in a woodland © Scott Shanks

older pines, Scotland still has large stands of these ancient pine woodlands. Our woodlands also support a diverse understory of native Bluebells (*Hyacinthoides non-scripta*) and other plant species.

Woodlands with open areas often support several species of moth and butterfly along with the nests of wood ants that need the sun to keep them warm. Wood ants nests are typically found along the edges of woodland or open glades.

Scotland's forests also have high rainfall, making them particularly good for invertebrate species that love damp, decaying deadwood, such as the very rare Pine hoverfly (*Blera fallax*), the Aspen hoverfly (*Hammerschmidtia ferruginea*) and several species of long horn beetle.



An example of an ancient birch tree © Tim Haynes



## FRESHWATER

Scotland has some of the most beautiful freshwater rivers and lakes (lochs) in the British Isles. The River Spey is exceptional in the UK, having a naturally dynamic, shifting mosaic of small channels, islands and wetlands along the majority of its length. The Spey flood plain at Insh Marshes is the largest transitional mire in the UK, comprising a variety of specialist wetland habitats that are home to many rare invertebrates.



Northern silver stiletto-fly © Roger Key

The largest intact river confluence in Europe can be found where the River Feshie enters the Spey. This large delta of sand and gravel is an important habitat for many invertebrates, including the Northern silver stiletto-fly (*Spiriverpa lunulata*).

Around half of the world's population of Freshwater pearl mussels (*Margaritifera margaritifera*) are found in Scottish rivers. Freshwater pearl mussels can live for up to 100 years. Most populations are at risk from the silting of rivers caused from activities in the water or erosion of the land (silting is the pollution of water with particles of silt or clay), and a wide range of activities including, of course, collecting. Action to conserve Scottish populations of these mussels will make a major contribution to the global survival of this species.



Blocked ditches at Fannyside Muir in North Lanarkshire © Scott Shanks

## PONDS

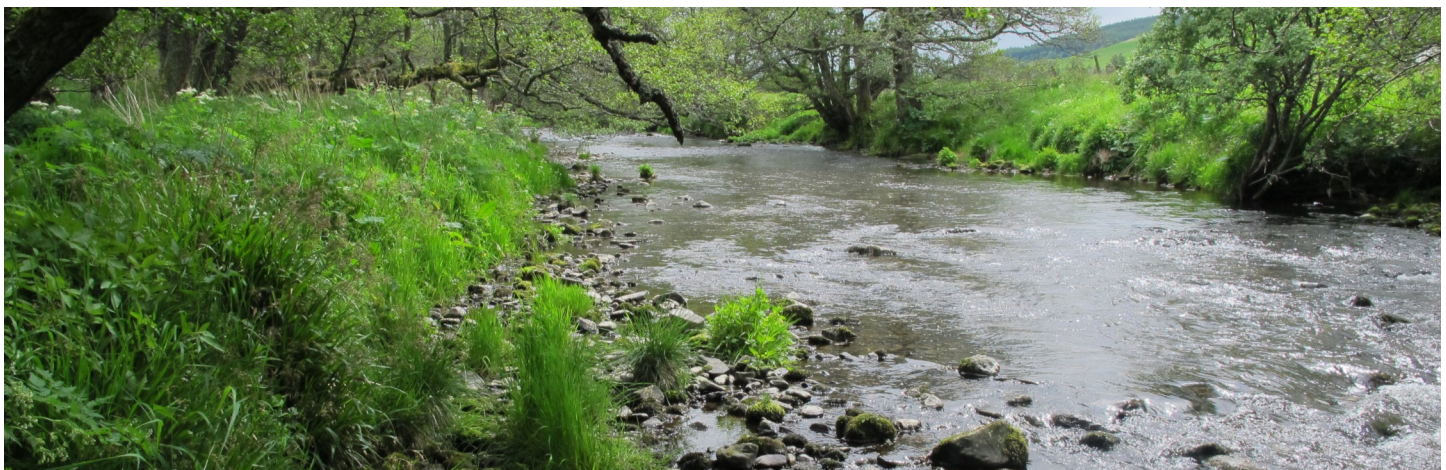
Ponds provide homes for a number of invertebrates. This includes those that live in the water, such as the nymphs of caddisfly and damselfly, and those that live in the vegetation growing along the edge of the pond, such as hoverflies feeding on the flowers.

Temporary ponds that dry up in the summer support a number of species including the very rare Tadpole shrimp (*Triops cancriformis*) and Pond Mud snail (*Omphiscola glabra*).

## PEATLAND

Blanket bog covers over 1 million hectares of Scotland. This represents over 70% of this kind of habitat in the UK, and the majority of blanket bog in north-west Europe.

In the lowlands, Scotland has some of the finest examples of raised bogs in Europe. Both blanket bogs and raised bogs support specialist beetles, dragonflies and flies including the Azure hawk dragonfly (*Aeshna caerulea*), the Bog bush cricket (*Metrioptera brachyptera*) and the Bog dance-fly (*Rhamphomyia obscura*).





## GRASSLAND

In Scotland, grassland covers about one third of the landscape. Scotland's grassland includes areas in parks, road verges, farmland (where it may be improved or semi-improved), in brownfield sites or more natural areas such as the species-rich machair.

Diverse species-rich grasslands are incredibly important for a wide range of invertebrates: flowers provide forage for pollinators, from bees to hoverflies to moths; plants are fed on by leaf beetles, plant bugs, grasshoppers and hungry caterpillars; and spiders spin their webs on the plants to catch flying insects. Grasslands are also home for a wide range of other wildlife including frogs, mammals and birds.

Buglife has worked with local authorities across Scotland to transform amenity grassland into colourful and diverse native wildflower and grassland meadows through our exciting B-Lines initiative.



A diverse meadow along the John Muir Way in Bo'ness © Suzanne Burgess

## MACHAIR

Fertile grasslands and dune systems of north-western Scottish coastlines are referred to as "machair". Machair is gaelic for 'fertile land'.

The chalky and free draining soil typical of this habitat is formed from marine debris and crushed snail shells. The fertile substrate gets formed by kelp when it gets washed ashore and naturally decomposes to form a compost which is ideal for coastal wildflowers and grasses.

This unique habitat offers a stronghold for rare species such as the Northern colletes mining bee (*Colletes floralis*) and the Great yellow bumblebee (*Bombus distinguendus*), which was once found



Montane plant Alpine Cinquefoil at Cairnwell, Glenshee © Melissa Shaw

across the UK but is currently restricted to islands that have machair habitat.

Sustainable crofting methods, such as the use of seaweed as fertiliser and increasing the area of late harvested crops, contributes to the preservation of high quality machair.

## MONTANE

The mountains of Scotland are important for a number of cold-loving species. Their location is further south than other arctic mountains, which means that they feature a range of climatic conditions within a relatively small area.

Rare invertebrates such as the Arctic whorl snail (*Vertigo modesta*) and the money spider *Mecynargus paetulus* live in this montane habitat above the tree-line, where they apparently thrive in seemingly severe natural conditions.



Montane habitat in Scotland supports a range of cold-loving invertebrate species © Suzanne Burgess

## THREATS TO SCOTLAND'S SPECIAL HABITATS

The habitats described in this leaflet are at constant risk of damage and loss through an increase in development, agriculture as well as climate change. Any loss in habitat can cause populations of invertebrates to collapse locally as ailing populations cannot be replenished from elsewhere. This reduces the resilience of the species as a whole and increases extinction risk. Other specific threats are outlined below:

**Woodland:** Felling for development, tree pests and diseases, removal of deadwood, competition from non-native species, climate change, pollution.

**Freshwater:** Pollution from biological and chemical wastes such as fertiliser runoff and industrial chemicals. Diversion of water sources for e.g. drinking water and agricultural irrigation. Invasive non-native species such as Japanese Knotweed spreads along waterways and out-competes native food plants.

**Peatland:** Deterioration in bog flora e.g. sphagnum moss through drying out (often due to previous drainage and management for forestry), nitrogen deposition, shrub and tree colonisation, grazing and soil erosion.

**Grassland:** Abandonment of grazing or cutting,



Great yellow bumblebee (*Bombus distinguendus*) foraging. These bees are now only found on the western isles of Scotland © Martin Scott and RSPB

allowing succession (progression to scrub/forest habitat) to take place. Overly intensive cutting regimes, herbicide use. Fertiliser usage provides excessive nutrients, allowing vigorous grass species to dominate and reduces the overall diversity of plant species affecting pollinators.

**Machair:** Poor grazing management, intensification of crop production, soil erosion and sea level rise.

**Mountains/upland:** Grazing, recreation, air pollution, afforestation (establishment of trees in areas with no previous tree cover).



Pine hoverfly (*Blera fallax*) and Aspen hoverfly (*Hammerschmidtia ferruginea*) are threatened with extinction in Scotland © Steven Falk

## How Buglife helps

Buglife Scotland run a range of habitat and species focused conservation projects that raise awareness of the importance of our varied landscape for invertebrates but that also create and better manage habitat that will ensure the long-term survival of many species in Scotland.

Advice on managing Biodiversity Action Plan priority habitats for invertebrates such as for mudflats and reedbeds and others are available on our [website](https://www.buglife.org.uk).

Sign up to Buglife Scotland's monthly newsletter with updates on exciting new stories, events, talks and volunteering opportunities in Scotland. E-mail [scotland@buglife.org.uk](mailto:scotland@buglife.org.uk) to be added to the mailing list.

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