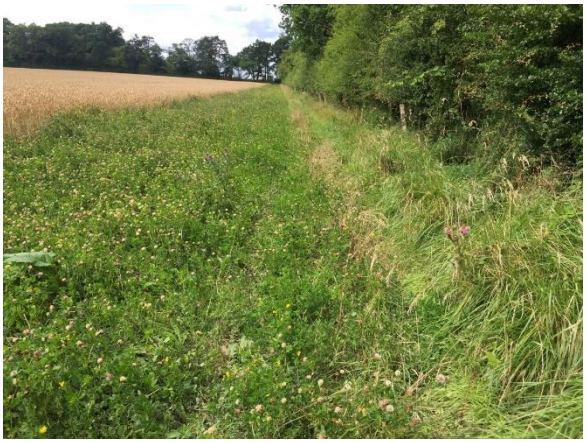
Technical Note TN764 / September 2023

Farm Advisory Service
National Advice Hub
T: 0300 323 0161
E: advice@fas.scot
W: www.fas.scot

Common habitats identification

Why identify habitats?

Ensuring natural habitats are protected and restored is crucial in achieving Scotland's future biodiversity targets. With 75% of Scotland's land being used for agriculture, the farming sector plays a vital role in conserving wildlife. Identifying farmland habitats helps land managers better understand the habitats on their farm and the condition that these are in. This can help you prioritise management actions that will benefit the environment and that are in line with the direction of the business. Additionally, knowing where habitats are can help prioritise the creation of new habitats. For example, through targeting areas that connect two isolated habitats, or placing habitats that provide these different resources next to each other to ensure that a target species has all the resources it requires.



It is also really important to recognise habitats that are particularly valuable to wildlife to ensure these are maintained and enhanced where possible. Here we provide an overview of habitats that can be found across Scottish farmland known to be of high biodiversity value. To help identify these habitats, information is provided on the plants to look out for.

Species-Rich Grassland

Species-rich grasslands have a high diversity of wildflowers and grasses. They are becoming increasingly rare and are one of the UK's most valuable habitats. Where once more than 7.5 million acres of the UK was wildflower meadows, twice the area of Northern Ireland, in the last century 97% of these have been lost. Species-rich grasslands range from upland acidic grasslands to lowland hay meadows. Supporting unique communities of wildflowers, these grasslands are particularly vulnerable to inorganic fertilisers, scrub encroachment and the small pockets that are remaining are threatened by development.

Where these habitats still exist, they provide food and shelter to support thriving populations of insects, birds, bats, amphibians and small mammals. Alongside this, they sequester carbon, promote healthy soil biota, improve water infiltration preventing flooding, and lock up harmful pollutants.

Species-rich grasslands can be identified through the type of species present alongside the number present in a meter square. This number varies across country and habitat. In upland grasslands, the species number and variation will differ from a lowland hay meadow. Where in upland grasslands 6 species per m^2 could be considered species rich, lowland hay meadows may have in excess of 25 species per m^2. Each grassland type is characterised by specific species (indicator species). Upland species-rich grasslands will include species such as harebells, sheep's sorrel, devil's-bit scabious and dog violet, and on more rocky, calcareous, areas this can include wild thyme and rock rose. Land managers should keen vigilant for the presence of nitrogen loving species such as creeping thistle, stinging nettle and dock, or scrub/bracken which could indicate that the grassland is deteriorating.

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Figure 1: Species rich acid grassland species. Left to right top to bottom; dog violet, devils bit scabious, harebells, wild thyme, sorrel.

Whereas lowland more neutral grasslands will have a higher diversity of wildflowers, like knapweed, bird's-foot trefoil, yarrow, selfheal and yellow rattle.

Figure 2: Species rich neutral grassland species. Left to right top to bottom: birds foot trefoil, selfheal, yellow rattle, knapweed, yarrow.

Heathland

Heathlands, a mixture of dwarf shrubs, grasses and wildflowers, are one of Scotland's most internationally important habitats. These iconic habitats attract visitors from across the globe. Upland heath is the most common heathland in Scotland covering approximately 31% of our land area. Its abundance across the country makes it a European stronghold for the habitat. Upland heath occurs where acidic mineral soil and shallow peat soils occur allowing for dwarf shrubs to dominate.

The diversity and abundance of flowering heathers and wildflowers provides a valuable food source for many of our pollinators, and the structural diversity of the shrubs, grasses and wildflowers provides a home for bird species like meadow pipit, curlew and skylark, as well as many reptiles like adders, slow worms and common lizards. Often managed as grouse moorland, heathland contributes significantly to Scotland's rural economic (estimated to be worth approximate £7 million annually).

Healthy heathlands support a variety of specialist species that rarely occur else. Heathland can be easily identified from the bright purple flowers of ling heather, bell heather, blaeberry, cowberry and crowberry.

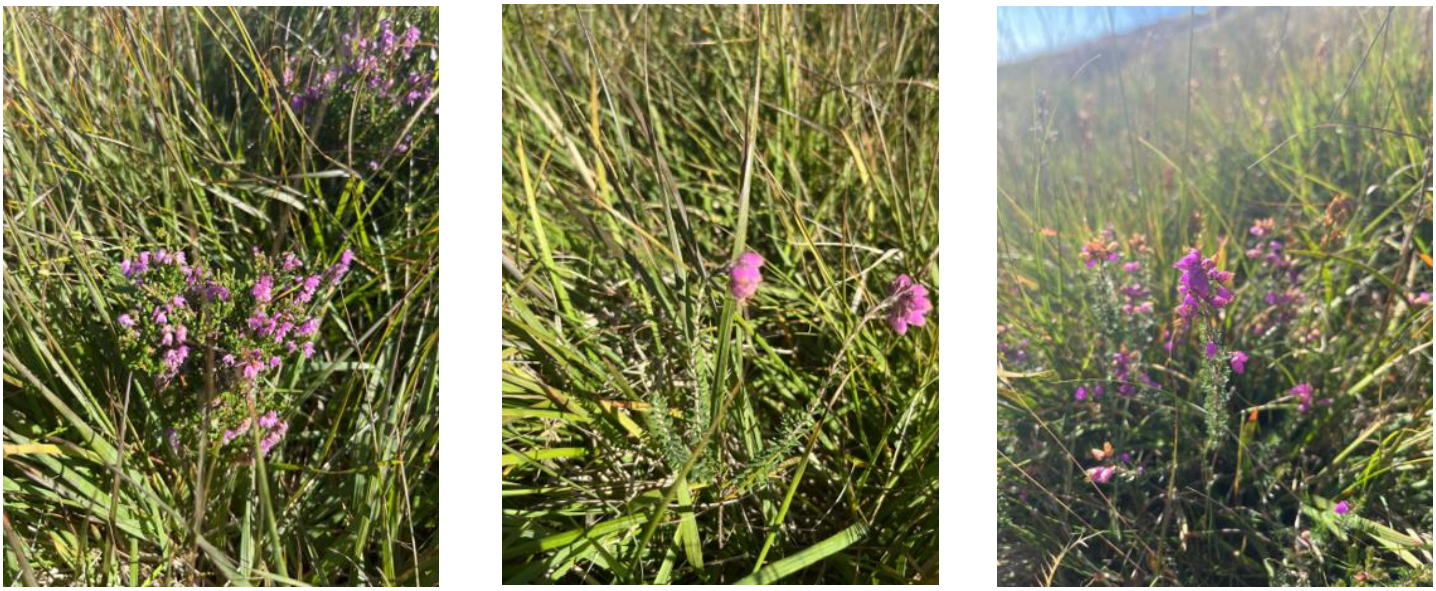


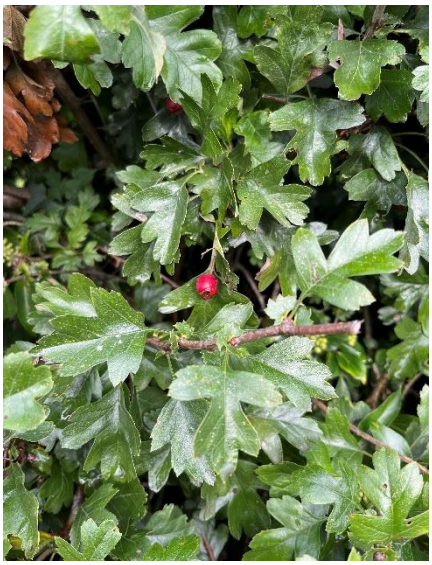
Figure 3: Left to right – ling heather, cross leaved heath, bell heather.

Hedgerows

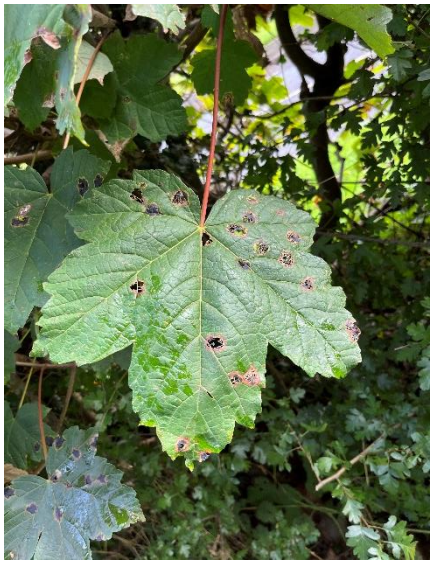
The hedgerow signifies the countryside to many people in Scotland. The line of shrubs and trees have a history of enclosing stock, but alongside their livestock enclosing abilities, their benefit to farmland wildlife cannot be overstated. Hedgerows provide linear habitat that connect wildlife through agricultural land, while also offering food and shelter to Scotland's beloved farmland species.

Hedgerows can offer varying levels of benefits to wildlife depending on their management and diversity of species. Having a diversity of native flowering species like blackthorn, rowan, hawthorn and dog rose offer a source of food for pollinators throughout the year. These shrubs then produce berries then provide a food source that extends into late autumn for birds like song thrush, yellowhammers and redwings. The bases of hedgerows provide shelter allow small mammals like hedgehogs, mice and voles to move through our countryside. While the roots and tall vegetation provides hibernation habitat for newts, lizards and snakes. Their connection through the countryside help bats and pollinators navigate, and barn owls are often seen hunting for small mammals along hedgerows.

Hedgerows are simple to identify, however the management and species composition of hedgerows can provide valuable information on how the habitat can be improved. Species-rich hedgerows are those with four or more woody species per 30 m of hedgerow. Usual species often include hawthorn, bramble, blackthorn, rowan, elder, dog rose, holly, hazel, oak and ash. A well managed hedgerow is one that is trimmed every two-three years, in the winter, and is part of a cycle of hedgerow trimming where only a third of hedgerows on a farm are cut in year.

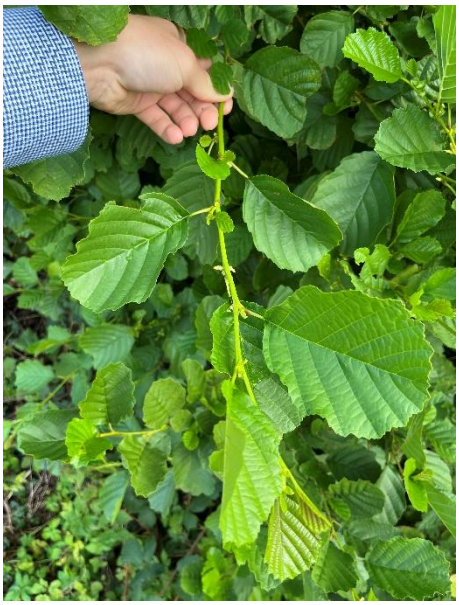


Hawthorn



Sycamore

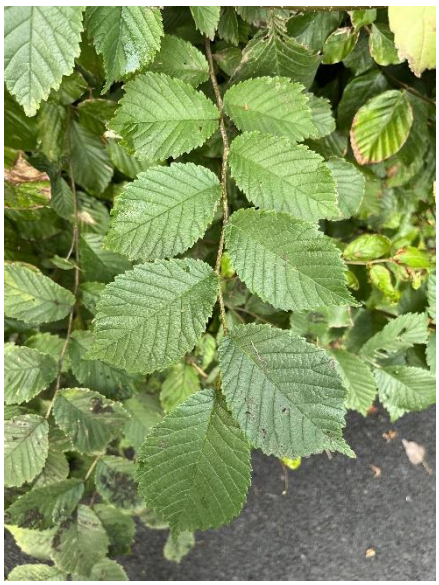
Ash



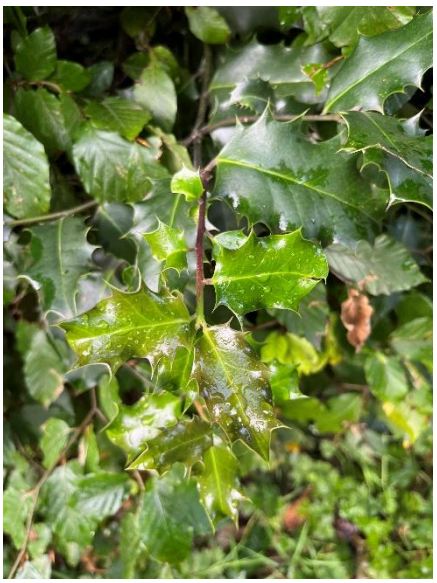
Alder

Elder

Beech



Wych Elm



Holly

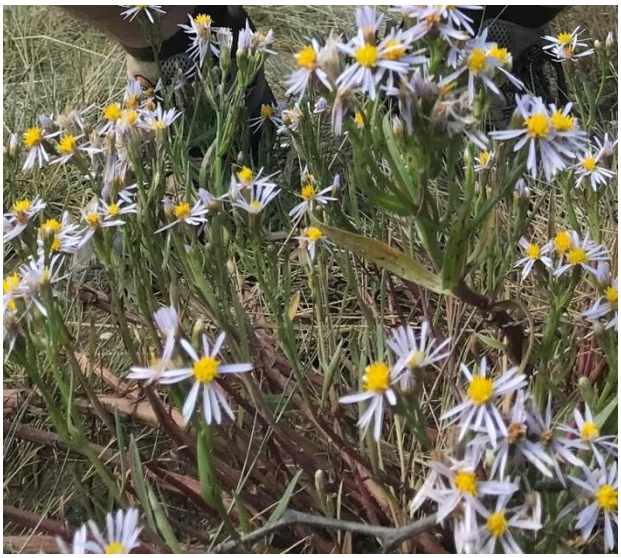
Rose

Saltmarsh

Saltmarshes occur where salty tidal water meets land in sheltered conditions, allowing the sea to deposit fine sediments that build up over time allowing plants to grow. The plants that grow here are usually highly specialised, evolved to withstand high salt levels and being under water periodically. These specific conditions mean that the plants and invertebrates found here are often limited to saltmarsh habitats, which are confined to the coasts of Scotland. The sheltered conditions that allow these habitats to form, are also the reason they are so sensitive, small disturbances can result in lasting impacts to these habitats.

While not only providing a home to some of the countries most specialist plants, fungi and animals, they also provide a wide range of other ecosystem services to society. These include carbon sequestration, where salt marshes were found to sequester 19 tonnes of CO^2 per hectare each year, and tidal defence, where the vegetation on these habitats reduces the impact of more extreme weather events which could increase with climate change.

Saltmarshes can be identified at different stages of their ‘succession’, where they go from mudflats of sediment deposits, to low marsh, mid marsh and upper marsh. Each of these stages supports different communities of plants. Plants to look out for include sea thrift, sea aster, scurvy grass, marsh pennywort, sea arrow grass and glassworts.



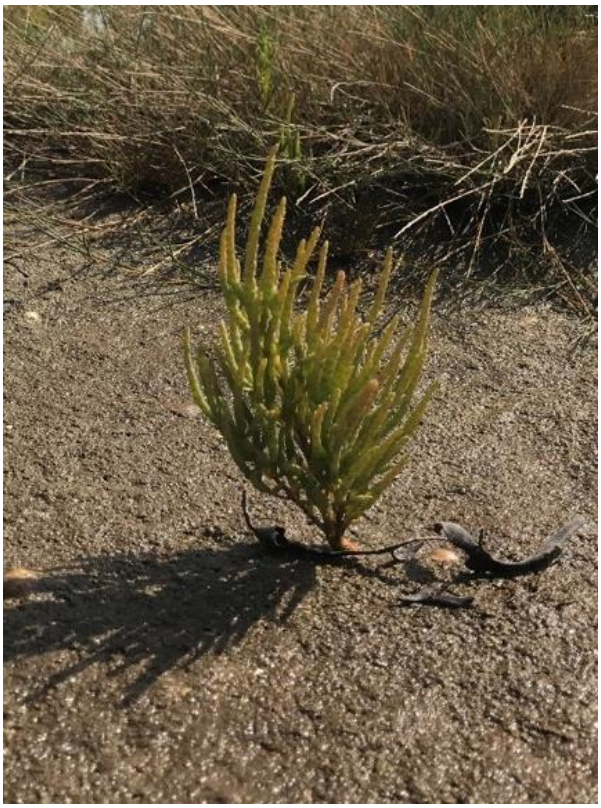


Figure 4: Saltmarsh species. Top to bottom left to right: Sea aster, Danish scurvy grass, marsh pennywort, sea arrow grass, sea thrift, glasswort.

Bog

Bogs are habitat that occur on gently sloping damp to very wet peat soils of at least 50cm depth. In Scotland, the two bogs we have are raised bogs and blanket bogs. Raised bogs are gentle domes of deep peat that have built up over time in previously water filled basins, whereas blanket bogs have built up in poor draining land to form an almost blanket like cover of peat. Peat bogs cover around 23% of Scotland's land, with the majority of these being blanket bogs.

With bogs covering so much land in Scotland, the benefits they provide society in surrounding areas can be seen across the whole country. One of their greatest benefits is the enormous amount of carbon they store underground in their peat. Scottish peatlands store around 1.6 billion tonnes of carbon this is equal to around 140 years worth of Scotland yearly emissions, and 25 times more carbon stored in entire UKs woodlands, grasslands, saltmarshes and every other vegetation combined. When damaged through drainage, extraction or over grazing, these bogs begin to release carbon. With 80% of Scotland's peatlands damaged, it is important that they are identified so effort can be made to restore them and lock this carbon in. Alongside this, they offer valuable habitat for many of Scotland's iconic biodiversity, as well as flood prevention.

Bogs can be identified by the presence of peat building species such as sphagnum mosses and hares tail cotton grass. Other species that can occur less sparsely include cross-leaved heath, deer grass and purple moor grass. Ling heather and bell heather can also be present, but as these species prefer drier conditions they will be more sparse than heathland habitat.

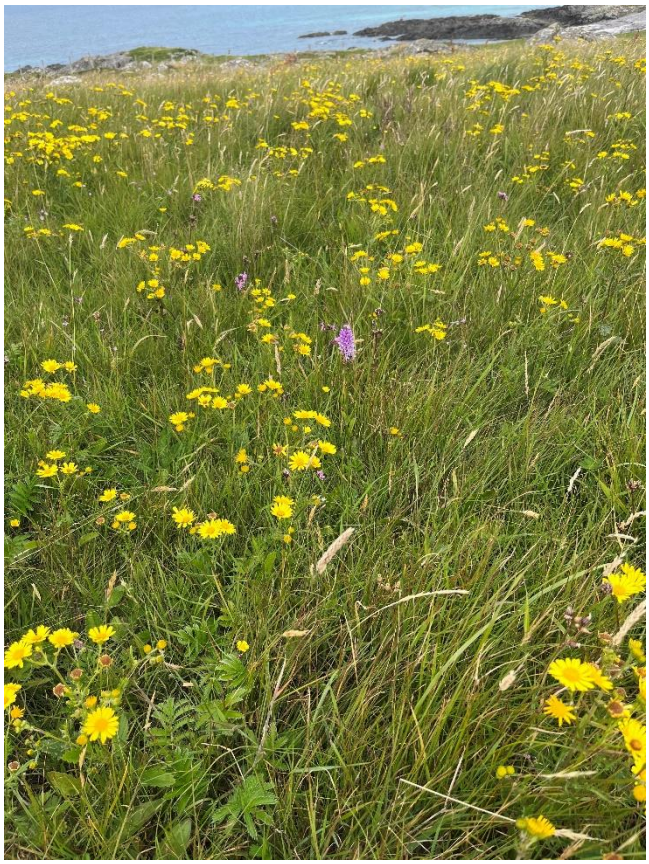
Figure 5: Bog species. Hares tail cotton grass and sphagnum mosses.

Machair

Machair is unique to the North-west of Scotland and Ireland and is recognised internationally as a habitat of high conservation value. Restricted to coastal regions, machair forms where sands loaded with shell fragments blow inland, and the cool wet oceanic climes support the vegetation. The habitat consists of a rich diversity of grasses and wildflowers typically maintained by conservational grazing, hay making or cropping.

The soil and climate required for machair to develop, alongside the sympathetic agricultural management gives rise to a rich diversity of grass and wildflowers. This diversity provides food and shelter for a wide variety of invertebrates, including many rare species such as the great yellow bumblebee and corncrake. Furthermore, the extensively managed swards provides ideal conditions for ground nesting birds such as lapwing, oystercatcher, and curlew.

The plant species that grow on machair depends on the dampness of the soil, but wildflowers will widley follow those found in species-rich grasslands. This could include yarrow, oxeye daisy, selfheal, red bartsia, devil’s-bit scabious, knapweed, orchids and yellow flag iris. Machair can be recognised from its unique assemblages of plants, in grasslands adjacent the sea where the soil is made up of fine sandylike shell materials.



Machair habitat

Author

Harry Fisher, SAC Consulting

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