

Grassland

Grasslands cover a third of Scotland's land area. They are important habitats that underpin a variety of ecosystem services whilst providing most of the forage support to Scotland's cattle and sheep. They are an iconic image of the Scottish landscape, of great cultural importance and have intrinsic value for recreation.

Species-rich grassland, including acid, neutral and calcareous:

Despite their inherent value to wildlife, the UK has lost 97% of its species-rich grasslands and in Scotland species rich grasslands now only occupy 2% of agricultural grasslands. Characterised by specific plant species, many pollinators and natural enemies rely on these habitats for pollen and nectar, and the loss of this habitat is of concern.



Improved permanent pasture and agriculturally improved and re-seeded grassland:

These grasslands have undergone improvements such as drainage and reseeded. They are typically dominated by ryegrass and receive relatively high inputs of fertilisers (e.g. inorganic nitrogen and slurry). As a result, they are extremely productive supporting high stocking densities.

Unimproved grassland, including acid neutral and calcareous: Unimproved grasslands are grasslands that have not been re-seeded for many years and are not subjected to intensive agricultural management. Whilst lacking the diversity of plants that characterise species-rich grasslands, they typically support a higher diversity of grasses and flowering plants than improved grasslands and offer the potential to be restored to a more species rich sward. Due to the lack of soil disturbance, the soils of unimproved grasslands are particularly valuable at storing carbon.

Wet grassland (including fen meadow, saltmarsh and rush pasture): A variety of wet grasslands occur in Scotland and these vary in their vegetation composition, the wildlife they support and the ecosystem services delivered. Rush pastures are particularly common and are typified by the presence of rushes alongside a diversity of grass species. Rush pastures provide valuable breeding habitat for declining wading birds such as curlews, lapwing and snipe.

Ecosystem services supplied by grasslands

Provisioning	Cultural	Supporting
<ul style="list-style-type: none"> • Crops (and feed) • Livestock • Wild foods 	<ul style="list-style-type: none"> • Water supplies • Renewable energy 	<ul style="list-style-type: none"> • Opportunities for recreation • Landscape and Aesthetic value • Cultural heritage
Regulating		
<ul style="list-style-type: none"> • Local climate regulation • Carbon storage and sequestration • Flood control • Soil quality and erosion regulation 	<ul style="list-style-type: none"> • Water purification • Air purification • Pollination • Pest and disease regulation 	<ul style="list-style-type: none"> • Nutrient cycling • Soil formation • Water cycling

Ecosystem service example – Pollination

Grassland habitats support the regulating ecosystem service of pollination as they provide habitat and a food source for pollinators. Pollination is an extremely important ecosystem service as the production of **84% of crop species cultivated in Europe** depends directly on pollinators. Crops including oilseed rape, field beans, apples and raspberries all rely on insect pollination and it has been estimated that pollination services contribute about £600 million per annum to the UK agricultural economy.

Pollinators include species such as wild and managed bees, beetles, hoverflies, and butterflies. These species need a continuous source of food throughout the spring, summer and autumn to survive. The Yellow Bumblebee **thrives on the traditional farming methods** associated with machair. Species-rich grasslands are the most floristically diverse, providing excellent foraging sites for a wide range of insect pollinators. And semi-natural grasslands particularly rough, species rich, coastal and damp grasslands are **very important butterfly habitats**. With different grassland types supporting different species, maintaining a mosaic of grassland types will also help to restore farmland biodiversity. **Read more on how to increase pollinators on your farm.**

Grassland management & biodiversity

Risks to be aware of

- Pesticide use that is intended for ‘troublesome’ insects and weeds can kill beneficial insects and plants too. **Learn more** about implementing an Integrated Pest Management Plan and an Integrated Pest and Pollinator Management (IPPM).
- Avoid inappropriate tree planting on habitats that are already rich in biodiversity such as species-rich and unimproved grasslands and wetlands. Planting these habitats up with woodland will shade out existing ground flora and dry out habitats, which will result in a loss of overall biodiversity and remove important habitat for plants, invertebrates and mammals. If considering tree planting seek advice.
- Overgrazing and undergrazing grasslands – Overgrazing can lead to a loss of species and structural diversity in grasslands and can also result in compaction of soils, erosion and an increased weed burden. Undergrazing can lead to rank vegetation, which over time also impacts on species and structural diversity of the grassland.

Management actions to enhance

Habitat provision

Livestock dung provides habitat for a variety of invertebrates including dung beetles. These work alongside bacteria and fungi, playing a key role in breaking down dung and re-cycling nutrients.

Learn more about what you can do on farm to increase dung beetle habitat.



Multi-species grassland sward tool

This is designed to help in choosing the most suitable herb and flower species to improve diversity in productive, improved grasslands (not to be confused with existing species-rich and unimproved grassland). It considers geographical location along with prevalent climate and soil conditions in order to indicate the range of species that will be most appropriate. **Try it out for your farm.**

Hedges and edges

Hedgerows can provide rich breeding, feeding and over wintering areas for butterflies. A hedge of mixed species with different flowering times is best. **Read more about hedgerows and other types of land management for butterflies** and read the **Hedgerow Guidance Document**. Intensive farming **has fragmented and isolated flower-rich habitats**. Create wildflower buffer strips and pollinator strips in unproductive corners, field margins and riparian zones. **Learn more about how to provide for pollinators in three easy steps.**

Assessing the condition of grassland

Species-rich grassland, which includes acid, neutral and calcareous. **Species-rich grasslands** can be identified by the presence of indicator plant species with these species depending on the underlying geology (Table 1). The frequency and diversity of these indicators can be used to assess the quality of species rich grasslands.

Table 1 Indicator Species of Species Rich Grassland by underlying geology

Acid	Neutral	Calcareous
Yellow tormentil	Common Knapweed	Purple thyme
White flowered heath bedstraw	Red clover and Bird's-foot trefoil	Yellow rockrose
Sedge spp.	Yellow rattle	Yellow Bird's-foot trefoil
Woodrush	Lady's bedstraw	White eyebrights
Sheeps sorrel	Pignut	Fine leaved bent and fescue grasses
Fine leaved bent and fescue grasses	Yarrow	Milkwort
	Selfheal	

Improved permanent pasture and agriculturally improved and re-seeded grassland: Soil health can be determined via a **Visual Evaluation of Soil Structure (VESS)** alongside an earthworm count. These assessments are straightforward to conduct and can immediately identify issues such as compaction. Improved pastures with more diverse grasses and forbs (e.g. yarrow, plantain and clovers), alongside management to enhance structural diversity (e.g. strip or **adaptive multi-paddock grazing**) will help support above and below ground biodiversity.

Unimproved grassland, including acid, neutral and calcareous: As in improved grasslands, VESS and worm counts allow rapid assessment of soil health. Determining the cover of broadleaved plants (e.g. plantain, clover, buttercup, ladies smock) will help assess the value to biodiversity. Unimproved grasslands tend to be less intensively managed resulting in vegetation that is structurally diverse. Altering grazing management to enable plants to flower and set seed and grasses to set seed will further enhance the value of this habitat.

Wet grasslands: Wading birds benefit from the structurally diverse vegetation that typify wet rush pastures. Patches of rush provide cover while areas of short vegetation provide the ideal foraging habitat. Maintaining a habitat mosaic is key and **topping rushes after all chicks have fledged will help prevent rushes spreading**. Wading birds particularly benefit from the presence of wet soft soil and the **creation of gently sloping ditches, or wader scrapes can enhance foraging habitat**.

