

# Management of Wetlands for Wildlife

## Summary

- **Wetlands are a large and varied set of habitats that are water covered for a significant part of the year.**
- **Wetlands are a valuable habitat providing high biodiversity and a habitat for specialist plants, birds amphibians, mammals and invertebrates**
- **Wetlands provide important environmental functions, such as storing carbon, flood management and sustaining the supply of clean water**
- **Management of wetlands will often be for a range of objectives. Prioritisation of these objectives will help to minimise potential conflicts.**
- **When managing for botanical interest the needs of both individual species and communities must be considered. Vegetation structure and composition is important for invertebrates and birds and is strongly influenced by management.**
- **Birds breeding on wetlands can be separated into waders and wildfowl. Wildfowl require winter flooding to provide feeding opportunities, whereas waders are dependent on the water table during the breeding season.**
- **Wetlands support a range of invertebrates. It is difficult to be specific about their requirements because of their huge variety; however there are two main factors, vegetation structure and long historical continuity of management which are important considerations.**

## Introduction

Wetlands cover large areas of Scotland where poorly draining soils, high rainfall and low temperatures create permanently or frequently waterlogged areas. This includes sites that are waterlogged or water covered for a significant part of the year: Reedbeds, marshes (salt water and fresh water), bogs, fens, and wet grassland.

Wetlands are a valuable habitat providing a wide range of environmental functions. Scotland's wetlands are home to a wide range of plants and animals providing habitat, cover and a feeding area for invertebrates, birds, mammals, amphibians and many specialised plants. Wetlands also provide important environmental functions, such as storing carbon, flood management and sustaining the supply of clean water. Consider what types of wetlands are on your ground and what benefits they provide, or could provide, to the environment.



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The European Agricultural Fund  
for Rural Development  
Europe investing in rural areas



Scottish Government  
Riaghaltas na h-Alba  
[gov.scot](http://gov.scot)

Wetlands are vital to a sustainable ecosystem and should be managed in order to maximise the benefits that they provide. As wetlands provide such a range of objectives prioritise these objectives to help to minimise potential conflicts. Most wetlands will not provide maximum benefit if fenced from livestock and ignored.

## Management of wetlands for wildlife



Wetlands include, by any definition of the term, a large and varied set of habitats. Here it means sites that are waterlogged or water covered for a significant part of the year: swamps, marshes, bogs, fens, and wet grassland. These categories often overlap. Marshes may flood becoming ponds. Fens may contain open pools, loch shores may be swamp fringed.

Wetlands are a threatened part of our natural environment. Centuries of draining have ensured the destruction of many of our wetlands. Declining area and quality of wetlands in recent times has had serious consequences for wildlife and the remaining areas of wetland habitat are increasingly small and isolated.

Wetlands provide:

- Habitat for invertebrates such as dragonflies, water beetles, butterflies and moths, all in turn providing a food source for other wildlife.
- Cover and feeding areas for birds such as snipe and water rail. They are also important nesting and feeding areas for waders such as curlew, lapwing and redshank.
- Cover for mammals such as water voles and otters.
- Habitat for amphibians such as frogs and toads.
- Habitat for many specialist plant species e.g. ragged robin, marsh marigold, butterfly orchid and flag iris.

Different types of wetland require different management and many wetlands can be managed in order to maximise their ecological potential. However every wetland is different, so if specific advice is required on the maintenance or improvement of a wetland for wildlife it is recommended that this is obtained from a qualified consultant.

Management of most wetlands will include a range of objectives both from nature conservation and agriculture. Prioritisation of these objectives will help to minimise potential conflicts. Wetlands can be managed for specific objectives such as breeding waders, invertebrates or plant communities. This will depend on the type of wetland and the wildlife that it already supports as well as your own objectives. For example if your wetland has or had, in the recent past, a population of waders it would be sensible to manage for breeding waders. If however it supports interesting or uncommon plant communities then manage for this objective. If you have any doubt on the quality or importance of your wetland contact a qualified consultant before you embark on any drastic change of management.

## Management of wetlands for plant communities

Wetlands support a variety of specialist plants. Most (but not all) wetlands benefit from low grazing levels. The composition of plant communities may be radically altered by minor shifts in the water regime. Some species are able to survive in situations with a high water table whereas other species must have a lower water table at certain times of year. Soil wetness can have an influence on the competitive balance between species. The timing of variations in the availability of both water and oxygen in the root zone with regard to key life stages is the critical factor.

The needs of both individual species and communities must be considered when managing for botanical interest. Vegetation structure and composition are important for invertebrates and birds and is strongly influenced by management.

Most wetland communities are associated with low soil-nutrient availability. There is clear evidence to indicate that even very low levels of inorganic fertiliser can damage botanical interest which persists for many years.

- Do not spray fertilisers, slurry or farmyard manure near wetlands and avoid spraying where run off can enter a wetland.
- Do not allow run off from silage or manure to enter the wetland.
- Do not bury dead stock in a wetland or where the remains can leach into the wetland.

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- Do not alter the water table of a wetland by drainage.
- Do not divert more water into a wetland without consulting an adviser.

Vegetation management such as mowing or grazing can be important for conserving wetland communities. Traditional management techniques such as hay making on wet grassland often creates exceptionally diverse swards. Careful consideration should be given before altering a management regime where a long-term tradition of management is established.

Low intensity grazing is important because it:

- Removes plant material containing nutrients.
- Prevents succession to coarser grassland types or scrub.
- Favours less competitive species allowing slower growing species to survive.
- Increases the diversity of plant species

Grazed wetlands will have a higher biodiversity value if they have a grazing break. Remove all grazing for at least 3 to 4 months in the summer to allow species to flower and set seed and reintroduce grazing for a short period of time in the autumn or winter to remove rough grasses. Wetlands with a high water table may not need any grazing to maintain biodiversity.



## Management for birds



Birds on wetlands can be separated into waders and wildfowl. There are seven wader species that use wetlands for breeding; lapwing, snipe, curlew, ruff (rare), redshank, oystercatcher and black tailed godwit (rare) plus wildfowl species which include swans, geese and ducks. Many other bird species will also use wetlands for feeding.

For breeding waders the most important factors are:

- the water table during the breeding season
- the structure of the vegetation
- Protection from predati

Different wading species prefer slightly different conditions. A high water table in the spring ensures that most of the invertebrate prey remains close to the surface making them accessible to foraging birds. When it comes to preferred vegetation structure this varies between species, see Table 1 below. The presence of mature trees will attract predators such as crows that can seriously reduce the breeding productivity of waders therefore open wetlands are best for waders.

	Curlew	Snipe	Redshank	Lapwing
Length of vegetation	Long with Tussocks	Tall vegetation for concealment	Short swards with taller areas for nesting	Very short swards. Often nests in arable returning to wet grassland for feeding
Water table	Least dependent on Wetland conditions	Requires soft damp soil	Shallow surface water for feeding	Requires damp grassland

Table 1

Wildfowl require winter flooding which provides feeding opportunities and secure roost sites. Deep permanent flooding is of little use to surface feeders and geese who much prefer large shallow winter floods. Low human disturbance is also of importance, in particular wildfowling, which will cause serious disturbance up to 400m from the disturbance site.

- Provide a mosaic of flooded and unflooded grassland to attract a diverse population.
- Do not use the site for shooting.
- Allow shallow winter flooding if appropriate.
- Do not put drains into land used by waders.
- Do not plant hedges or trees in close proximity to breeding areas.
- Minimise trampling during the breeding season.

Breeding populations of wading birds are declining rapidly in Scotland. This is thought to be because of changing land management, poor weather, increased disturbance and predation



Curlew © H Bibby



Redshank © H Bibby

## Management for invertebrates

Wetlands support a wide range of invertebrates including ground beetles, snails, butterflies and moths and the adult forms of dragonflies and caddisflies. Most invertebrates are dependent on vegetation structure and are not associated with single plant species. Butterflies and moths however, are normally associated with a single plant species and have specific needs (See Table 2).



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Table 2 Specific Requirements of wetland butterflies

Species	Habitat	Main foodplant	Growth form of foodplant	Management	Status
Orange tip	Damp meadows, drainage channels and edges	Cuckoo flower	Large flowering plants in sheltered conditions	Heavy grazing or mowing in winter or spring. No disturbance May - August	Common throughout UK
Marsh fritillary	Damp and wet meadows	Devil's bit scabious	Medium sized plants in warm sheltered sward	Light grazing preferably by cattle. Sward length 5cm approx	Nationally scarce



Orange tip © H Bibby



Marsh Fritillary © H Bibby

It is difficult to be specific about the requirements of invertebrates because of their huge variety however there are two main factors:

- Vegetation structure (i.e. sward height, tussockiness) and composition (species present) influence the number and range of invertebrates present. Many insects require a mixture of sward heights in close proximity to the range of conditions needed during different life cycle stages. The tussockiness of a sward is a good indication of its value to invertebrates.
- The second important factor is long historical continuity of management. Many invertebrates are highly specialised with very precise habitat requirements. This means they can be sensitive indicators of environmental change. It also means they can be lost from a site through small changes in management of their habitat such as enthusiastic drainage or flooding. Create a varied vegetation structure with around quarter of the area to be tussocky but do not radically alter the structure without due consideration of the reasons.

### Further general information

<https://www.environment.gov.scot/our-environment/land/wetlands/>

<https://www.farmingforabetterclimate.org/>

<https://www.rspb.org.uk/our-work/conservation/projects/caithness-wetlands-and-waders-initiative/>

<https://wadertales.wordpress.com/2017/10/04/wetland-bird-survey-working-for-waders/>

<https://www.ruralpayments.org/publicsite/futures/topics/all-schemes/agri-environment-climate-scheme/management-options-and-capital-items/wetland-management/guidance-for-wetland-management>

<https://www.wwt.org.uk/conservation/>

### Author

Helen Bibby  
SAC Consulting  
Glencruitten Road  
Oban Argyll PA34 4DW

T: 01631 563 093  
E:frbsoban@sac.co.uk