Marshland in the Kent Downs landscape

Marsh can be defined as land that is waterlogged for at least part of the year. Marsh land is not common in the Kent Downs AONB because of the free draining nature of much of the underlying rock such as chalk. However, small areas of marsh can be found which are important for wildlife and contribute to the variety of the landscape.

Marshy areas usually contain plants such as rushes, sedges and reeds with wild flowers such as marsh marigold (also known as kingcup), yellow flag iris, marsh orchids, water dropwort, water mint and marsh thistle. In the absence of management such of grazing or mowing, then the marsh is invaded by shrubs and trees such as willow and alder and gradually develops into wet woodland. Many of the marsh plants disappear in the shade of the shrubs and trees. You can find out more about wet woodland in the woodland section.

Marshy areas can be found at the base of the downs where springs are commonly found when water percolating through the chalk meets impermeable clay layers. Marshland in calcareous (chalky) areas is often referred to as fen, and marshland on acid (sandy) soils is often called bog. A good example of a spring fed calcareous fen can be found at Holywell Fen, Folkestone Downs. Wet and acid conditions can prevent the decay of plant remains leading to the formation of peat, a very rare habitat in Kent, which can be found in places such as Gibbins Brook, near Sellindge. A great deal of marshland has been lost, having been drained and ploughed for agriculture. This is particularly the case on Romney Marsh, a small area of which is included in the Kent Downs. The Romney Marsh is an area of approximately 150km^2 of reclaimed marshland crossed with drainage ditches. The land use is mainly agricultural with a mixture of arable and livestock farming. Water levels are artificially raised in the rivers, canals and other larger drainage ditches (known as sewers) across the main body of the Marsh.

The sewers and drainage ditches across marshland are not only essential for the drainage of land, they also provide valuable habitat for

Royal Military Canal

a number of rare and protected species including water vole, great crested newt, marsh mallow, greater water parsnip and medicinal leech. The Romney Marsh is the best place in Europe for wild populations of medicinal leech and also is one of the national strongholds for the water vole. The Marsh's proximity to Dungeness National Nature Reserve (NNR) means that many rare bird migrants are recorded here throughout the year. These migrants are attracted to the marshland areas where they can feed and breed. Sympathetic management of the ditches is essential in order to preserve the populations of all of these species. This section aims to provide as much information as it can to allow those that have responsibility for the management of drainage ditches and marshland, to make the correct decisions and ensure that the landscape and wildlife of the marshland is retained.


Medicinal leech


Great crested newt

Paul Lambourne


Water vole


Marsh mallow

Important features of marshland

Marginal vegetation

This describes plants that prefer damp marsh conditions and are found at the edge of ditches. Ditches can become overgrown with dominant species such as common reed if not managed properly. A diversity of marginal vegetation is favourable for a number of species including the water vole.

Aquatic vegetation

Aquatic vegetation provides food, shelter, and protection for a range of species. As with marginal vegetation ditches can become overgrown with dominant species and a diversity of aquatic vegetation is most favourable.

Land use

Different land use affects the ecology of ditch in different ways. Ditches on arable land can suffer from the influx of nutrients causing nitrification. Ploughing up to the edges causes erosion. Grazed ditches can suffer from poaching (trampling) of the bank, influx of nutrients and overgrazing of emergent vegetation. A certain amount of grazing can be beneficial in that it increases competition and therefore increases species diversity.

Wildlife

Marshland offers a diverse range of habitats in which many different species thrive. The key species found on the Romney Marsh include water vole, marsh mallow, medicinal leech, greater water parsnip and great crested newt. All of the species have been awarded some level of protection by law and should be considered before any major work takes place.

Marshland management

Ditch management

The role of the Environment Agency

The Environment Agency (EA) is responsible for the management of the Main River Channels (MRC) across marshes. These include the larger sewers and the river systems which intersect marshes. The EA manages the ditches in a sympathetic way for wildlife without compromising on flood defence. An annual clearance programme is carried out at the end of the summer every year. The EA leaves a 20% margin of emergent vegetation on one side of the channel to ensure habitat and food supply for water voles and breeding birds is left throughout the autumn and winter months.

Your responsibilities as a marshland owner

- You have the responsibility to pass on flow without obstruction, pollution or diversion affecting the rights of others.
- You have the responsibility to accept flood flows through your land, even if caused by inadequate capacity downstream, as there is no common law duty to improve a watercourse.
- You are responsible for maintaining the bed and banks of the watercourse (including trees and shrubs growing on the banks), and for clearing any debris, natural or otherwise, including litter and animal carcasses, even if it did not originate from your land. Your local authority can give you advice on the removal of animal carcasses.
- You must not cause any obstructions to the free passage of fish.
- You are responsible for keeping the bed and banks clear of any matter that could cause an obstruction,
- You are responsible for keeping clear any structures that you own such as culverts, trash screens, weirs and mill gates.
- You may have flood defences such as walls and embankments on your property, which are vital for the protection of both yourself and others. You should discuss the maintenance of such defences with your local Environment Agency office.
- You are responsible for protecting your property from seepage through natural or man-made banks. Where such seepage threatens the structural integrity of a flood defence, it may become the concern of the Environment Agency (EA 2006).

Grazed ditch

Applying for consent

Consent to carry out management on marshland is not always necessary. But it is advisable to check with Natural England or the Environment Agency if any major work is planned. These organisations should also be contacted if you know of or suspect any protected species are present.

Aquatic vegetation

Management of aquatic vegetation

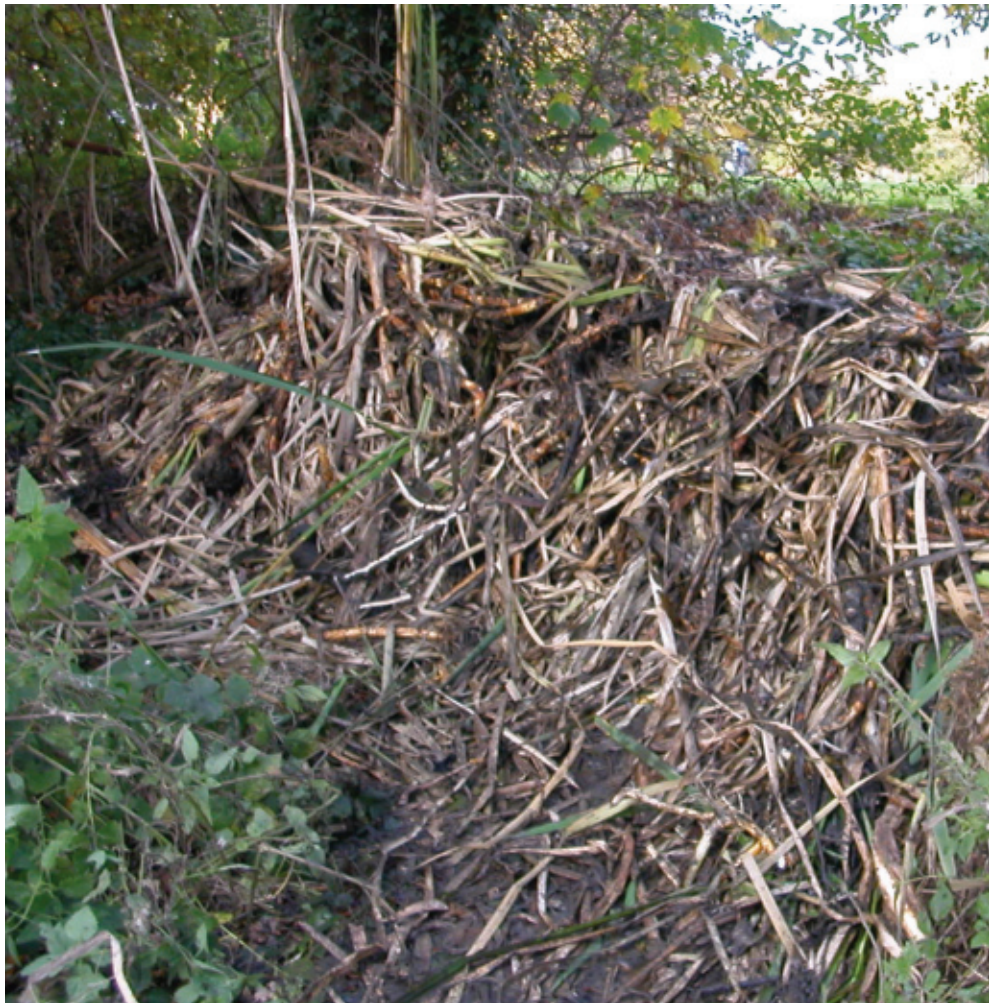
Ditches are some of the most diverse wetland habitats but they need to be regularly cleared to maintain their drainage function. This can cause problems if not carried out sympathetically. The management of aquatic vegetation is best carried out in the autumn and winter months (September – November). This should ensure that any species which have been using the ditch to breed have moved on so disturbance is kept to an absolute minimum.

Control of aquatic vegetation

Aquatic vegetation can be removed from the ditches simply by hand or using specialised cutting equipment. It is recommended that small areas (no more than 30%) of the ditch are cleared of vegetation on a rotational basis to avoid the entire habitat being lost in one go.

It is best to cut in an upstream direction if the water course has a flow. This allows any wildlife to float down and re colonise other areas of the stream.

Cut vegetation can be left on the opposite bank to the one being cut. This can be left but by doing so nutrients will increase and this will encourage the growth of dominant species such as nettles and thistles along the ditch bank. It is best to remove spoil from the site after being left for 24 hours to enable any creatures trapped during the clearance to escape.



Vegetation removed and left on the bank to allow animals to escape

De-silting

The prime objective of de-silting and dredging is to remove the volume of silt and sediment that has accumulated in the ditches over a long period of time.

This silt and sediments cause not only the reduction in the storage capacity of the ditch, but also accumulation of the nutrients that promote pollution of ditch water and luxurious growth of aquatic weeds, algae and bio-organisms.

In liaison with local groups (Natural England and Environment Agency), establish a program of rotational ditch maintenance that ensures that a fringe of marginal vegetation is left and ditch banks remain undamaged. The frequency of the maintenance will depend on the function of the ditches and the rate of vegetation growth. The best time to de-silt a section of a ditch would be between November and January, therefore, avoiding breeding seasons of all protected species.

As with the removal of marginal vegetation, it is best to remove no more than 20-30% at any one time, work in an upstream direction and identify suitable spoil sites which will not damage water vole burrows or any other valuable habitat.

Physical erosion of the banks

Physical erosion of banks may occur when the surrounding land is used for keeping livestock. Ditches are often used as wet fencing and are used by livestock as a source of fresh water.

As a result of this the banks can become trampled (poached) by the animals leaving little or no emergent vegetation and often compacted soil banks unsuitable for burrowing creatures such as water voles.

In order to avoid this problem, fences can be put up along the lengths of the ditches to prevent the animals from accessing the water.

Romney Marsh

A number of gaps in the fencing or "drinks" can be installed so certain areas are available for the livestock to drink. If already poached the fencing will allow the banks to recover and they will quickly re-colonise with emergent vegetation.

Marshland scrub

The build up of scrub is a common problem on unmanaged ditches. Hawthorn, blackthorn, willow and brambles will all colonise an unmanaged area especially on ditches bordering arable land. Some trees are important around a ditch as leaf litter provides food and cover for a number of invertebrate species.

However, if the scrub margins become too consolidated then removal is the best. This will open up the ditches allowing more light to enter. It will also encourage the growth of emergent vegetation and species diversity.

Management options
If scrub is a problem i.e. it is causing a ditch to become too overshaded and dry, the scrub can be removed. Use the method of cutting as specified in the woodland section of this pack, and dispose of the cut material well away from the ditch banks.

Pollution

Pollution can be a huge problem in marshland and ditch systems. This is because they are interlinked and pollution can easily spread in this situation.

Reducing pollution and managing water quality
If you suspect a pollution incident contact the Environment Agency 24-hour hotline: 0800 80 70 60

There are a number of ways to reduce the potential for pollution in ditches.

- Reduce the amount of fertilisers used on the land. This includes muck spreading and the location of compost heaps near to a water course.
- Install buffer strips of tall vegetation between the crop and the water course to reduce the amount of nutrients entering the watercourse. This will also benefit wildlife.

Scrub encroachment

Seek consent from the EA if the use of fertilisers or herbicide near a water course is required.

See Rivers and riverside land section for more details on riparian ownership and management. Canals should be managed as Rivers, with extra emphasis on maintaining the recreational value as well as the value for wildlife.

Dealing with invasive plant species

Some invasive plant species are becoming a problem in certain areas across marshland. These plants originate from outside of the British Isles and have escaped from either gardens or have been deliberately released into the wild. Some of these non native species grow vigorously and often out-complete native species and can quickly dominate an area of wetland. These weeds can cause a lot of damage to wildlife and in some cases pose a risk to human health. The main problem invasive species on Romney Marsh are New Zealand pygmy weed, parrots feather, water fern.

See the Rivers and riverside land section for details on dealing with invasive plant species such as giant hogweed, Japanese knotweed and Himalayan balsam.

Please report findings of any of these invasive species to the Environment Agency.

New Zealand pygmy weed (*Crassula helmsii*)

This invasive pond weed originates from Australia and New Zealand. It can grow in damp soil, shallow margins of lakes and ponds and submerged in water. It forms dense mats of vegetation blocking out light and killing native species. It grows in stands of densely packed, short stems. The plant has two pairs of fleshy unstalked opposite leaves. The flowers are small with four white petals.

New Zealand pygmy weed *Crassula helmsii*

Control

The best policy is to look out for this species in the water course and if seen to remove it completely before it begins to spread. Once it has colonised it is often difficult to get rid of. The best way to control Crassula is to use spraying by herbicides or covering with a black plastic bag to block out light and kill the plant. Digging out is not recommended as the plant can regenerate from the smallest fragment of plant left behind. A leaflet – "*Crassula helmsii* Focus on control" – is produced by Environment Agency and the Institute of Freshwater Ecology provides information on the biology and management of *Crassula*. If using herbicides authorities must be informed for more advice contact your regional Environment Agency office.

Parrot's feather (*Myriophyllum aquaticum*)

A feathery aquatic plant which is still sold in some garden centres, the stems protrude from the water and it is becoming a frost resistant plant. It forms dense mats of vegetation and can take over a water course.

Control
Can be removed by hand or sprayed with herbicide. As with Crassula, Parrots feather is green in the winter so it can be treated at this time of the year when other native species are dormant.

Parrot's feather *Myriophyllum aquaticum* (and detail)

Water fern (*Azolla filiculoides*)

Water fern, also known as Fairy fern, is a type of floating blanket weed which if left will cover large areas of a water course. This surface coverage will block out light getting into the water course and therefore smother other native species.

Control
Water fern can easily be removed by hand. The weed can be scooped off the surface using a net or board and disposed of by composting or burning.

Water fern *Azolla filiculoides*

Dealing with non-native animal species

As with the invasive non-native plant species, introduced animal species can also cause a lot of problems. These species can occupy niches of absent native species or destroy habitats and populations of native species within a water course. One of the problem introduced animal species on marshlands is the American mink. Other introduced species include the marsh frog and red eared terrapins.

American mink

The American mink was introduced from America in the 1930s for the fur trade. They have been released and have escaped from farms since then establishing wild populations throughout the UK. The American mink has become one of the predators of the protected water vole. The water vole is un-adapted to cope with this foreign predator. Natural defence methods do not work and the female mink are slim enough to squeeze into water vole burrows and kill any voles within. If mink are present in a watercourse they can wipe out a water vole population within weeks. It is thought that the 89% decline in water vole populations nationally over the last 20 years can be blamed partly on the spread of the American mink.

Control

The control of the American mink should be done at the landowner's discretion. The best way to find out more about the current methods and research on the control of this species is to get advice from the Game and Wildlife Conservation Trust (GWCT). The web site details are available at the end of this section. This will also give details on how to find out whether you have mink living on your ditches before any control is implemented. Mink control can be a costly and lengthy process. It might be worth contacting your local CMP to see if there other landowners are carrying out any research/control in the area or if they can help with grants or the supply of mink trapping equipment. See Contacts.

American mink