How to Manage your Hedge Ditches for Invertebrates

Introduction

Hedges are more than just lines of shrubs. They usually have some sort of herbaceous growth at or near the base and many contain emergent trees. They may be set on banks and can have ditches along one or both sides. The best hedges have wide margins, often referred to as buffer strips or headlands, which are managed differently from the arable or grass crop. These five different components: mature/emergent trees, shrub layer, base/bank, ditch and margins, need to be thought about when deciding how to manage a hedge.

Ditches often form part of the hedge network. They are important for hedge biodiversity because they often support considerable numbers of invertebrates which are essential food for many vertebrates and predaceous insects. They may also support scarce or threatened species.

Hedge Ditch
Photo: Rob Wolton

A Good Ditch for Invertebrates

Hedge ditches are most important when they are not overshadowed by the shrub layer and do not become filled with hedge trimmings and other litter. They will be most valuable if their banks slope gently into the water or if there is a definite shallow area that allows emergent plants to grow. Such ditches may be fringed by a range of flowering plants such as wild angelica and purple-loosestrife that provide nectar to insects such as bumblebees towards the end of the summer.

Within the body of the ditch, fluctuating water levels can be important, but ditches generally support greater species diversity if they maintain some water throughout the season. Emergent plants and fully aquatic plants can help to improve the structural diversity of the ditch. This broadens the range of available niches and increases the diversity of invertebrate species present.

Hedge and ditch
Photo: Rob Wolton

Hedge Ditch
Photo: Rob Wolton

Hedge Components used by Ditch Invertebrates

Mature/Emergent Trees	✓
Shrub Layer	✓
Bank/Base	X
Ditch	✓
Margin	✓

Key Management Tips

There are many ways in which a hedge can be improved to support ditch invertebrates:

- Clean out ditches on rotation, so they don't become completely filled with plant or woody debris while ensuring there is continuity of habitat.
- Avoid creating steep-sided ditches as this will limit the potential for structural variation amongst emergent vegetation.
- Do not allow ditches to become polluted by run-off from silage clamps, manure heaps or fertiliser run-off.
- Prevent ditches from becoming over-shadowed by trimming adjacent shrubs. It is preferable that trimmings do not end up in the ditch.

Hedge Ditch
Photo: Rob Wolton

Ecology of Hedge Ditch Invertebrates

Ditch invertebrates are an important part of the diversity of life in hedges. They are dependent upon the structural features provided by aquatic and 'emergent' plants. Some aquatic insects use foliage for roosting or as assembly points for swarming, and consequently shrubs and hedge trees can form important assembly points that also attract predators such as birds and bats.

Many of the most important ditch invertebrates in the context of hedges are the non-biting midges (Chironomidae) that occur in huge numbers. The larvae of these midges are the well-known 'bloodworms' that are found in decaying vegetable matter in the bottom of the ditch. The larvae are specially adapted to living in low oxygen levels associated with poor water quality which is a frequent feature of hedge ditches. The midges often emerge in huge numbers and are a major part of the diet of many predatory vertebrates such as bats and birds; as such they may be regarded largely as biomass rather than specifically for their intrinsic interest. Other important groups include the eristaline hoverflies whose larvae are the well-known 'rat-tailed maggots', which can also be extremely abundant and whose adults may perform an important role as pollinators.

In some places, where water quality is good, the fauna of ditches is important in its own right. Here, specialised assemblages of dragonflies, molluscs, water beetles, true bugs and flies may include highly localised or rare species. In some parts of the country faunas are exceptional but they usually occur in landscapes where ditches are used as wet boundaries between fields such as on grazing marshes.

The recommended management will also benefit other ditch wildlife, such as frogs, toads and newts, birds which breed in tall vegetation on the banks, and water shrews *Neomys fodiens*.

A non-biting midge (Chironomidae)
Photo: Rob Wolton

Eristalis tenax one of the rat-tailed maggot species that lives in ditches
Photo: Gail Hampshire

Further information

The Drainage Channel Biodiversity Manual
http://www.wlma.org.uk/uploads/NE121_Drainage_Channel_Biodiversity_Manual.pdf

Hedgelink leaflet (2013)*The Complete Hedge Good Management Guide*. www.hedgelink.org.uk