GRAZING MARSH DITCHES - Sheet 5

# Coastal realignment and invertebrates

**Grazing marsh ditches are a valuable resource for nature conservation, supporting very rich and special assemblages of invertebrate and plant species, and providing a national stronghold for numerous rare and threatened species. A number of coastal grazing marshes are severely threatened by rising sea levels and are subject to coastal defence or managed realignment schemes. When creating grazing marshes to replace those that are lost, all aspects of ecology need to be considered, not just the best known species such as birds, as these often don't reflect the best sites for other wildlife.**

**Using the experience gained from the Buglife survey of the aquatic invertebrates and plants of grazing marsh ditches (see Further information), the following recommendations are made for managed realignment projects.**

Brackish ditch - North Kent Marshes © Vicky Kindemba

## The geographical identity of ditches

Marshes lost as a result of rising sea levels or managed realignment of coastal defences should be replicated at a local level, as invertebrate assemblages that are separated by more than one or two counties are likely to be distinctly different from one another. An assessment will be needed to establish the ecological character of a grazing marsh to be lost and an equivalent amount of similar habitat should be created in the same local area.

## The importance of brackish ditches

Brackish ditches are restricted geographically and are an important and distinctive element of the grazing marsh habitat, especially in the east of England. Salinity has a profound influence on the composition of both invertebrate and plant assemblages, and the invertebrate fauna of brackish ditches has a far more distinct identity than that of freshwater ditches. This salt-tolerant fauna contains fewer species, especially of molluscs, but a greater proportion of species with a high fidelity to coastal grazing marshes.

In order to maintain maximum diversity of plant and invertebrate species, it is vital to retain the spectrum of brackish and freshwater ditches represented in a marsh or a geographical area. The existing salinity range and variation, both geographically and temporally, will need to be assessed and an appropriate replacement site designed with the same brackish variation. Brackish ditches occur predominantly in the coastal marshes of North Kent, Essex and Norfolk, but they are also represented in other areas, sometimes surprisingly far inland, as at Fairfield in Walland Marsh, in southern Kent.

## The difference between ditches in arable land and grazing marsh

The Buglife project included surveys of five ditches in arable land at Walland Marsh. These ditches were noticeably poorer in species and supported fewer rare species than

Little whirlpool ram's-horn snail (*Anisus vorticulus*) © Paul Sterry

ditches in most of the SSSI marshes surveyed. Although the sample size was very small, other evidence also indicates that arable ditches are generally more impoverished than grazing marsh ditches and therefore grazing marsh ditches should not be replaced with ditches in arable land.

## Vegetation types

To maximise the biological potential of a ditch network, all stages in the natural development of the aquatic vegetation - from sparse submerged vegetation to reedswamp - should be represented. It would not be possible to achieve this in the initial creation stage of a new wetland, but it should be an aim of the long term management of the marsh.

## Rare species

Many of the rare species present in grazing marsh ditches have particular requirements in relation to salinity and the successional stage of the vegetation, which highlights the importance of understanding the existing environmental conditions. Baseline surveys are needed to identify the important species present in a threatened site, so that appropriate conditions can be recreated. Here are some examples of marshes threatened by rising sea levels and the rare invertebrate species associated with them. On Pevensey Levels species to be considered are: Shining ram's-horn snail (*Segmentina nitida*), Little whirlpool ram's-horn snail (*Anisus vorticulus*), Large-mouthed valve snail (*Valvata macrostoma*), Fen raft spider (*Dolomedes plantarius*) and Lesser water-measurer (*Hydrometra gracilenta*); and on Walland Marsh the Medicinal Leech (*Hirudo medicinalis*).

## Monitoring

It is recommended that realigned ditches in the replacement site are surveyed for environmental conditions and the species present. These ditches should subsequently be monitored to assess the long term success of the project in replacing lost habitat. Monitoring should ideally be after

Pevensey Levels © Martin Willing

1, 2, 5 and 8 years, and continued for longer if the habitat has not stabilised. As part of the Buglife grazing marsh ditches project, standard survey and monitoring methods were developed, covering environmental features, vegetation and invertebrates (see Further information). Both vegetation and invertebrates should be monitored, as ditches that are poor for vegetation may be of interest for their invertebrate fauna.

A few species associated with rich assemblages can be searched for, to provide a preliminary indication of high site quality. However, these high quality indicator species need to be different for brackish and freshwater sites. For freshwater sites the Ornate brigadier soldierfly (*Odontomyia ornata*), the Great silver water beetle (*Hydrophilus piceus*) and Frogbit (*Hydrocharis morsus-ranae*) could be used and on brackish sites the diving beetles *Rhantus frontalis* and *Graptodytes bilineatus*, and Brackish water-crowfoot (*Ranunculus baudotii*).

Buglife has developed a series of advice sheets on the creation, conservation and management of grazing marsh ditches. These are available at www.buglife.org.uk

- Sheet 1 - **An important habitat for invertebrates**
- Sheet 2 - **Creation and restoration for invertebrates**
- Sheet 3 - **Management for invertebrates**
- Sheet 4 - **Agri-environment schemes in England**

**Further information**

The Buglife grazing marsh project produced two technical reports, which are available on Buglife's website www.buglife.org.uk

Drake C.M., Stewart N.F., Palmer, M.A. & Kindemba V.L. (2010) The ecological status of ditch systems. An investigation into the current status of the aquatic invertebrate and plant communities of grazing marsh ditch systems in England and Wales. Technical Report. Buglife - The Invertebrate Conservation Trust, Peterborough

Palmer M.A., Drake C.M. & Stewart N.F. (2010) A manual for the survey and evaluation of the aquatic plant and invertebrate assemblages of ditches. Version 4. Buglife - The Invertebrate Conservation Trust, Peterborough

Buglife – The Invertebrate Conservation Trust
First Floor, 90 Bridge Street, Peterborough, PE1 1DY

Telephone: 01733 201210 Email: info@buglife.org.uk

**www.buglife.org.uk**

Registered in England at First Floor, 90 Bridge Street, Peterborough, PE1 1DY.
Company no. 4132695. Registered charity no. 1092293. Scottish charity no. SC040004.

This leaflet has been sponsored by the Esmée Fairbairn Foundation

08/2011