Abbotts Hall Farm
Threats to coastal habitats

Fact Sheet No.6
Spring 2004

Joan Hardie

Coastal habitats at Ray Island in the Blackwater Estuary

The Blackwater Estuary is one of the largest in East Anglia and its value is recognised by several national and international conservation designations. The coastal habitats that make it so special are tidal mudflats, saltmarshes and coastal grazing marsh. Some 80% of the coastal marshes on the east coast have already been lost and those that remain are disappearing at an alarming rate. This has major implications not only for wildlife but also for flood defence, and affects everyone who lives on, visits or values these wild and beautiful places.

The value of coastal habitats

Mudflats are exposed at low tide and provide rich feeding grounds for a variety of molluscs, crustaceans and worms, and for the wildfowl and waders that feed on them. Saltmarsh provides shelter and food supplies for fish, shellfish and birds and has a wildlife value comparable to the tropical rainforests. Grazing marsh provides ideal habitat for breeding waders and wildfowl, and is visited by birds of prey such as Hen Harrier, Merlin, and Short-eared Owl in winter.

Saltmarshes and mudflats also help to maintain water quality by absorbing and processing pollutants such as excess pesticides and fertisisers, and provide a natural form of sea defence by dissipating the energy of the sea. Without protection from saltmarshes sea walls must be higher and the cost of both building and maintainence rise hugely.

Estuary Habitats

Coastal habitats are intimately linked. Mudflats provide the substrate on which saltmarsh forms and large areas of both occur naturally in shallow estuaries like the Blackwater. Coastal grazing marsh was produced from medieval times by separating an area of saltmarsh with a sea wall and then draining it. At a few places such as Ray Island in the Strood Channel where there is no sea wall, the natural transition from mudflats to saltmarsh to grassland can be seen .

Joan Hardie

Flowering saltmarsh

Saltmarsh

Saltmarsh is composed of salt tolerant vegetation growing between the average level of high neap and spring tides above unvegetated mudflats. It is formed by the accumulation of silt in sheltered areas, which is then colonised by specialised plants that trap more silt. This gradually builds up to form distinctive green mounds interspersed by shallow muddy and salty pools, and bisected by meandering creeks that allow the tidal waters to drain in and out without scouring the vegetation.

The Blackwater Estuary contains the largest area of saltmarsh in Essex (over 1000 hectares), and is the fifth largest such area in the UK.

Saltmarsh vegetation forms in zones according to how often and long it is covered by salt water. Glasswort and cordgrass are the main pioneers to colonise the lowest regions and newly forming saltmarsh. They are followed by annual sea blite and sea aster. High marsh species include sea lavenders, thrift, sea-purslane, sea plantain, scurvy grasses, sea spurries and sea arrowgrass. The highest levels that are rarely covered by sea water, are called transition zones, and are dominated by grasses.

There are many organisms living on the surface and within the soils of the marsh that are important sources of food for many shorebirds, seabirds and wildfowl. These are classified by size as macrofauna (larger than 1mm), microfauna (less than 0.1mm) and meiofauna (between the two). Organisms living in underwater sediments are described as benthic.

Saltmarshes are an important resource for wading birds and wildfowl providing both food and shelter. Birds feeding on mudflats use them as high tide refuges and they are important winter feeding grounds. They also perform an important role as a nursery for fish and shellfish, including commercially important species.

The Joan Elliot Visitor Centre at Abbotts Hall Farm Great Wigborough Colchester, Essex CO5 7RZ
Tel 01621 862960
Fax 01621 862990
E-mail admin@essexwt.org.uk
Website www.essexwt.org.uk

Registered Charity No 210065

Supported by

WWF

Environment Agency

English Nature

Heritage Lottery Fund

DEFRA support the environmental schemes on the farm

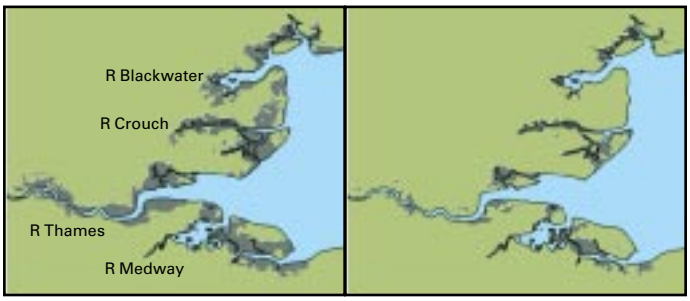
Mudflats

Mudflats develop in moderately sheltered coastal inlets, bays and estuaries and are usually the largest part of the intertidal area, covered by every tide. Mudflats are composed of silts and clays with a high organic content. They have a high biological productivity, making them excellent feeding grounds for birds and fish, depending on the state of the tide. Although the surface of the mud appears unvegetated it is often covered by microalgae that bind the sediment together.

Grazing Marsh

Coastal grazing marsh has been created from saltmarsh by building a sea wall around the marsh and then draining it with ditches. This has taken place over many centuries, with the traditional use of the claimed land in Essex being for grazing sheep. The condition of the land and its conservation value depend on the intensity of grazing, the amount of fertilisers, pesticides and herbicides used, and the management of water levels. Traditional management methods provide important habitat for wintering wildfowl including brent geese and wigeon, and breeding waders such as redshank and lapwing.

Losses in grazing marsh in the last 60 years have been as high as 70% as agriculture has become more intensive and large areas of grazing marsh have been converted to arable use and lost as a wildlife habitat. In the Blackwater Estuary areas of ancient grazing marsh are managed for conservation at Copt Hall Marshes (The National Trust), Old Hall Marshes (RSPB), and Tollesbury Wick (Essex Wildlife Trust).



RSPB

Essex grazing marsh in the 1930s & 1980s

Erosion

Erosion of saltmarsh at the seaward edge occurs naturally in the more exposed locations. This can be made worse if the supply of sediment available to replenish eroding marshes is reduced. Sediment supplies can be affected by coastal protection works at other coastal locations and by dredging and dumping operations.

Joan Hardie

Eroding intertidal habitats in the Blackwater Estuary

In some locations wash created by power boats and jet bikes can significantly increase erosion. The Environment Agency has several experimental schemes to protect mudflats and saltmarsh from erosion, such as the use of brushwood polders.

Threats to coastal habitats

University of Hull

Land claim round the Crouch Estuary (University of Hull)

The major historical loss of saltmarsh, from Medieval times onwards, was due to drainage and land claim for agriculture. In some cases, such as the Crouch Estuary, this changed the very shape of estuaries, which have lost their natural funnel shape. Mudflats have been reduced by up to 80% in some estuaries by land claim for urban development, transport infrastructure and industry. Today although coastal developments such as ports, roads, industrial sites, waste disposal and marinas can all involve land claim and losses of mudflats and saltmarsh, the areas affected are relatively small.

Coastal squeeze

Today the main threat to the future of the remaining areas of saltmarsh and to mudflats comes from coastal squeeze, where they are squeezed out of the reducing intertidal area between rising sea levels and fixed sea walls. Coastal squeeze is described more fully in Fact Sheet 5.

It is estimated that about a quarter of the saltmarsh in England has been lost in the last 25 years and that over 1000 hectares has been lost from the Essex coast in this time. Current losses are 100 hectare per year. If nothing is done to address this the remaining saltmarsh will soon disappear.

Agricultural intensification

Much grazing marsh was converted to arable use in the second half of the 20th century. Land retained for grazing has lost its conservation value through more intensive grazing, drainage, and the greater use of agricultural chemicals. Herbicides and pesticides reduce biodiversity directly, while dissolved nutrients from fertilisers can cause the growth and decomposition of oxygen-depleting plant life. This is called eutrophication.

Pollution

Pollution such as oil, sewage effluent, boat antifouling paint containing TBTs, and agricultural fertilisers has damaging effects on the invertebrates and vegetation of mudflats and saltmarsh. When plants die back sediment can be lost and the habitat is damaged, even if the plants eventually recover. A recent study found that agricultural weedkillers reach saltmarshes via rivers and streams and damage the vegetation.

Cord grass

Common cordgrass, *S. anglica*, is a hybrid of the native small cordgrass with the naturalised alien smooth cordgrass, which has spread around the south coast, swamping out the native saltmarsh species. Extensive swards of cordgrass also threaten bird feeding grounds and efforts have been made to control it. To date there are only small patches in Essex.

Common cord grass

Addressing the threats

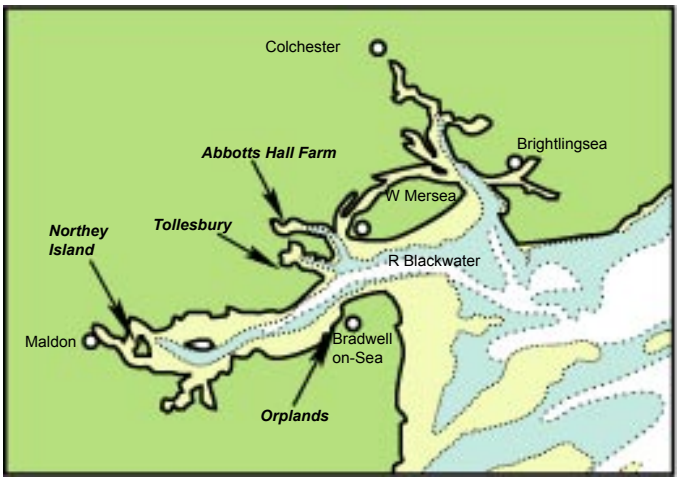
As well as the ecological and economic values described earlier, coastal landscapes are valued in their own right by coastal communities, and people from walkers, fishermen and birdwatchers to sailors, artists and poets. They form an important part of our natural heritage. If we want future generations to be able to benefit from and appreciate such coastal habitats, positive action is needed to protect what remains and create new habitats to replace those lost through coastal squeeze and other causes.

National and international conservation designations afford some protection from development pressures, for example by requiring Environmental Impact Assessments and the creation of compensatory habitat where development is agreed. However, this is not enough to ensure the survival of these habitats.

The UK Biodiversity Action Plan for coastal saltmarsh proposes targets to counter the threats.

1. Create 140 hectares of saltmarsh each year to compensate for losses.
2. Maintain the community and species diversity of the existing saltmarsh.
3. management where necessary, for example by ensuring the development of the full range of saltmarsh zones in coastal realignment sites.

There are similar targets and action plans for other coastal habitats.



Coastal realignment sites on the Blackwater Estuary

The coastal realignment at Abbotts Hall Farm aims to create 49 hectares (117 acres) of saltmarsh and 35 hectares (84 acres) of coastal grassland and is one of the largest such projects to date. As well as gaining valued habitats, the project will provide valuable experience of habitat creation that can be used elsewhere. Other examples of saltmarsh recreation in the Blackwater Estuary can be seen at Northey Island (6 acres), Tollesbury (40 acres) and Orplands near Bradwell Marina (90 acres).

Joan Hardie

Mudflats in the Walton Backwaters

Joan Hardie

Grazing marsh at Tollesbury Wick Marshes

Andrew May

New saltmarsh forming at Abbotts Hall Farm in 2003

Further Information

Barnes Richard, 1979, The Natural History of Britain - Coasts and Estuaries, Hodder & Stoughton
Burd Fiona, 1995, Managed retreat: a practical guide, English Nature
English Nature website, www.english-nature.org.uk/livingwiththesea/
Smith Geraint, 2003, Farming chemicals are blamed for new flood threat to South East, Evening Standard, 23 June 2003, p18
UK Biodiversity Group Tranche 2 Action Plans, Volume V: Maritime species and habitats, www.ukbap.org.uk