



# Maritime cliffs and slopes

## Habitat Action Plan

### 2009-2013

<b>Plan Lead Organisation</b>	Redcar and Cleveland Borough Council
<b>Plan Coordinator</b>	Keith Ferry
<b>Action Group</b>	Wetland and Coastal
<b>Associated Plans</b>	Sand dunes, Coastal and calcareous grassland
<b>Latest version</b>	Draft July 09

### Description

Maritime cliffs and slopes are defined as sloping to vertical faces on the coastline where a break in slope may be formed by slippage and/or coastal erosion. Slopes can vary between 15 degrees to vertical. The zone is determined on the landward side by the extent of the maritime influence (i.e. the limit of spray deposition) and on the seaward side to the limit of the supralittoral zone (immediately above high water) and so includes splash zone lichens and/or other species which occupy this habitat. Coastal habitats less steeply sloping than this are included in the sand dunes and coastal and calcareous grassland habitat action plans.

The UK coastline contains about 4000km of cliffs and slope habitat. Maritime cliffs and slopes form through land slippages or coastal erosion. The vegetation of maritime cliffs can vary widely depending upon the geology, degree of slope, exposure to wind and salt spray. Maritime cliffs and slopes support a variety of plants and are important breeding grounds for many birds. Ledges on maritime cliffs are important nesting sites for sea birds such as kittiwake, fulmar, shag and cormorant.

Cliffs are divided into 'hard' or 'soft' rock, dependent on geology. Hard cliffs are widely distributed around the more exposed coasts of the UK, occurring principally in south-west and south-east England, in north-west and south-west Wales, in western and northern Scotland and on the north coast of Northern Ireland. Hard rock cliffs tend to be formed of rock which is resistant to weathering and wave action, such as limestone, whinstone or sandstone. Vegetation develops on their ledges or in crevices. Soft cliffs are typically made of clay, generally of glacial origin. These cliffs are more unstable and landslides are common. Their slopes are less steep, and these cliffs gradually become vegetated. Soft cliffs provide important breeding sites for sand martins, which burrow into soft faces exposed by recent slippages, but they are particularly important for invertebrates as they provide a suite of conditions which are rarely found together in other habitats. The combination of friable soils, hot substrates and open conditions maintained by cliff slippages offer a continuity of otherwise very restricted microhabitats and these support many rare invertebrates which are confined to such sites. Seepages, springs and pools are a feature of many soft cliff sites and these provide the wet muds required by many species of solitary bees and wasps for nest building.

## Current factors causing loss and decline

Erosion is a highly significant factor especially for soft cliffs. Erosion is a natural process and does not imply a loss of the cliff resource, either in geological or biological terms, where cliff face communities are able to retreat with the cliff line. It is vital for constantly renewing geological exposures and for recycling botanical succession. However, cliff top vegetation may be lost where it is squeezed between a receding cliff face and cultivated land. This is the most significant factor affecting the extent of the habitat. Other factors are:

- ◆ Acceleration of erosion from agricultural drains discharging from cliff faces.
- ◆ Increased erosion through increased storm frequency from climate change and sea level rise.
- ◆ Increased erosion from recreational pressure.
- ◆ Localised eutrophication can be caused by fertilizer run off from arable land above; this encourages sparse vigorous “weed” colonisation at the expense of maritime species.
- ◆ Shrub invasion on coastal slope grassland due to cessation of grazing by domestic livestock.

## Conservation Status

Habitats Directive, Annex I

UK Biodiversity Action Plan Habitat.

The area between Boulby mine to Staithes is within the North Yorkshire Moors National Park.

## The Habitat in the Tees Valley

The Tees Valley coastline from Crimdon in the North to Staithes in the South covers approximately 40km, including 19 km of maritime cliffs and slopes. The cliffs between Saltburn and Staithes are Jurassic in age (198-180 Million years old) and have a hard mudstone base from the Redcar Mudstone Formation. This is overlain by a hard lowercliff of sandstones and ironstones. This hard layer is overlain by softer mudstones from the Whitby Mudstone Formation. The original capping of sandstone has been removed as part of the extraction of alum in the 17<sup>th</sup>-19<sup>th</sup> centuries. The cliffs all have a capping of glacial clay deposited at the end of the Devensian Ice Age (10,000 years ago). The typical profile is a steep lower cliff with a softer curve to the upper cliffs. This softer top makes the cliff tops unstable and liable to landslides. The Boulby cliffs rank among the highest on the British mainland at 200 meters and consist of Jurassic shales with a sandstone strata overlain with boulder clay, generally of glacial origin. These high cliffs are unstable and landslides are common. At Skinningrove a 300m section of cliff has been created by slag deposits from former iron stone works. This has developed a diverse and distinctive plant community which is characterized by calcareous and maritime plant species.

The differing resistance of the rocks to erosion has produced horizontal ledges, which support seabird colonies, including kittiwake, fulmar, cormorant and razorbill. The upper cliffs, in areas where the soft bolder clay has slumped and been colonised by scrub, hold dense breeding populations of whitethroat, yellowhammer and linnet

## Current Activity in the Tees Valley

This Tees Valley Habitat Action Plan focuses on the maritime cliffs and slopes between Saltburn and Boulby that are not within the North York Moors National Park. The North York Moors National Park Authority Habitat Action Plan covers the adjacent 28 miles of maritime cliffs and slopes that are within its boundary. The cliffs between Saltburn and Staithes are of local and national importance for wildlife and heritage, being part of the North Yorkshire and Cleveland Heritage Coast. This designation continues down the coast to Scalby Ness, just North of Scarborough.

The North Yorkshire and Cleveland Heritage Coast partnership is formed from local authorities, government agencies and interest groups. It was established in 1997 to enable work on a coastal management plan. The North Yorkshire and Cleveland Coast Forum was established in 2002 to provide an integrated forum for the co-ordination of Coastal Management of the North Yorkshire and Cleveland Coast, focusing on conservation, recreation, coastal and flood defence, natural processes, water quality, marine issues, and the economic and social needs of coastal communities. A Heritage Coast Project Officer (employed by the National Park

management plan. Work directly concerned with maritime cliffs and slopes includes:

- ◆ Assisting landowners with agri-environment schemes to promote an increase in cliff-top semi-natural habitats, by compensating farmers for a one-field-back buffer zone.
- ◆ Running a small-scale grants scheme to assist with practical conservation work.
- ◆ Monitoring coastline habitats and digitizing data already collected from volunteer and professional survey work.
- ◆ Raising awareness of the importance of coastal habitats through interpretation, walks, talks, work with schools, leaflets.

## Further Information

Hill, C.T., Doves, R.H.E. & Harfoot, A. J. P. 2006. Maritime Cliff and Slope Inventory 2004/2005. Natural England Research Reports, No NERR003.

Mitchley, J. & Malloch, A.J.C. 1991. Sea Cliff Management Handbook. University of Lancaster and Joint Nature Conservation Committee in association with the National Trust. Published by the Institute of Environmental and Biological Sciences, University of Lancaster.

Sykes, N. 2005. Wildflowers of the North Yorkshire Coast. North York Moors National Park Authority.

North Yorkshire and Cleveland Heritage Coast forum. 2008. North Yorkshire and Cleveland Heritage Coast Management plan, third review, 2008-2013. North Yorkshire Moors National Park Authority.

### Websites

North Yorkshire and Cleveland Coast Forum [www.coastalforum.org.uk](http://www.coastalforum.org.uk)

## Vision Statement

To ensure the long term survival of the biodiverse habitat mosaics on coastal cliffs and slopes by habitat management and to establish buffer zones enabling land lost by erosion to be replenished.

## Targets

**MCS.T1** To establish the 'one-field-back principle' along the coastline: buffer zones the width of a field along the cliff tops, to enable a natural wildlife zone to assert itself and replenish habitats lost to erosion, introducing grazing were feasible.

Target goal: 10 ha of coastal grassland restored to favourable condition by the reintroduction of grazing (The Warren, Loftus)

## Actions

Code	Action	Organisational lead	Action contact	Partners	End date
MSC.A1	Establishment of a Grazing Animal Project (GAP) for the North Yorkshire and Cleveland Heritage Coast through HLS scheme.	North Yorkshire and Cleveland Coast Forum	John Beech	National Trust, North Yorkshire Moors National Park, Natural England	Establish by 2011
MSC.A2	Work with landowners and interested partners to develop/retain a strip of semi-natural vegetation along the coastline.	North Yorkshire and Cleveland Coast Forum	John Beech	National Trust	Ongoing
MSC.A3	Carry out field surveys to assess the conservation status of the invertebrate fauna of coastal slopes.	INCA	Robert Woods	Tees Valley Wildlife Trust	2010