Scottish Natural Heritage

BURNMOUTH COAST
Site of Special Scientific Interest

SITE MANAGEMENT STATEMENT

Site code: 278

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Purpose

This is a public statement prepared by SNH for owners and occupiers of the SSSI. It outlines the reasons it is designated as an SSSI and provides guidance on how its special natural features should be conserved or enhanced. This Statement does not affect or form part of the statutory notification and does not remove the need to apply for consent for operations requiring consent.

We welcome your views on this statement.

Description of the site

The Burnmouth Coast Site of Special Scientific Interest (SSSI) comprises an 8 km long continuous section along the sea cliffs and foreshore of the Berwickshire Coast. The site is centred on the village of Burnmouth, extending north of the village to the headland near the entrance to Eyemouth harbour, and south to the national boundary with England.

The site is of geological and biological interest.

Geological Interest

The two separate geological interest features within the SSSI represent rocks formed at two different periods in the geological past. These are separated by a major fault or rock fracture which trends north-south through the site and cuts the coast just north of Burnmouth. To the west of this fault, the rocks are about 430 – 420 million years old from the Silurian geological period; to the east the rocks are about 355 – 335 million years old from the Carboniferous geological period.

The Silurian rocks are amongst the best exposed in a belt of similarly formed rocks that extend across the Southern Uplands of Scotland and beyond. During this geological period, Scotland and England were located on different continents and were separated by a large ocean called the Iapetus Ocean. Processes deep within the earth were causing the two continents to move together and the ocean to get smaller. The ocean floor was pushed beneath Scotland and deep into the interior of the earth where it melted in the intense heat. As this took place, sediments eroded from the Scottish continent by rivers were continually being washed into the ocean and deposited in layers within submarine fans on the ocean floor. As the ocean floor was pushed underneath Scotland, these sedimentary layers were scraped off and deformed, to eventually build up what is today the Southern Uplands of Scotland. The alternating sandstone and shale layers exposed along the Burnmouth-Eyemouth coast are the horizontal layers deposited on the ocean floor. Their current vertical orientations and the associated

folding and faulting are the result if the deformation that took place as the sediment was scraped off the ocean floor as it was pushed beneath Scotland. The coastal section between Burnmouth and Eyemouth provides one of the most geologically interesting and best exposed cross-sections through the Silurian rocks of the Southern Uplands and is vital for research into the formation of these rocks.

The Carboniferous rocks exposed south of Burnmouth are younger than the Silurian rocks to the north. They belong to the lower part of the Carboniferous geological period referred to as the Dinantian. After the closure of the Iapetus Ocean, and the collision of the Scottish and English continents at the end of the Silurian period, the Southern Uplands had built up into a substantial mountain chain. Erosional processes dominated over deposition at this time. Towards the start of the Carboniferous period, a change in conditions resulted in a thick sequence of sediments being deposited in what is now south east Scotland. These sediments were derived through the erosion of the pre-existing rocks forming the Southern Uplands. After being transported by rivers, the sediment was deposited into a lowland area similar to a modern day coastal plain, or delta. This environment was restricted in extent, being bordered to the north and south by upland areas, and huge amounts of sediment accumulated in layers. Today, this ancient lowland area is known as the Northumberland Basin. The coast south of Burnmouth provides excellent exposure of the Dinantian succession in the Northumberland Basin. The completeness of the sequence makes it useful not only for determining events within the Northumberland Basin but also for correlating with other Dinantian sequences elsewhere in Britain to build up a comprehensive picture of environmental conditions throughout ancient Britain at that time.

Biological Interest

The biological interest of the site is the coastal grassland on the sea cliffs throughout the site. The quality of this habitat is variable along its length due to differences in the nature of the generally thin and fragile soils present, different degrees of exposure to the weather and sea spray, and the nature of the management of the ground immediately inland from the cliffs which varies from arable to livestock grazing to housing. All of these factors influence the species composition of the grassland. In addition, where the east coast mainline railway runs through the site, the management of the grass embankments that is necessary for functioning of the railway line controls scrub encroachment. Occasional landslips on the cliffs provide exposed soil for colonising plants, many of which support locally rare butterflies such as the small blue which is dependant on kidney vetch found on thin, exposed soils.

The foreshore between mean high and low water springs support habitats and species that are of international importance. Information on these designated areas can be found on the SNHi SiteLink section of our website under Berwickshire Coast (intertidal) SSSI and Berwickshire & North Northumberland Coast Special Area of Conservation (SAC).

Monitoring of the Features of Interest

The 2002 site condition monitoring (SCM) assessment of the Lower Carboniferous geological feature found it to be in favourable condition. The feature is intact, accessible at low tide, and visible for study

The 2007 SCM assessment of the Caledonian Structures geological feature found it to be in favourable condition. The feature is intact and the exposures remain unchanged since the previous assessment.

The 2000 SCM assessment of the Maritime cliff biological feature found it to be in unfavourable condition due to the presence of nitrogen-loving weedy species (common nettle, creeping thistle) in some of the cliff-top grassland areas.

The 2003 SCM assessment of the fly assemblage feature found it to be in favourable condition. Surveys found five rare cranefly species and one soldier fly species, all of which are associated with seepage habitats along the cliffs.

Natural features of Burnmouth Coast SSSI	**Condition of feature** (and date monitored)
Lower Carboniferous [Dinantian - Namurian (part)]	Favourable – maintained (June 2002)
Caledonian Structures	Favourable – maintained (July 2007)
Maritime cliff	Unfavourable - no change (Sept 2000)
Fly assemblage	Favourable –maintained (July 2003)

Features of overlapping sites that are not notified as natural features of Burnmouth Coast SSSI	**Condition of feature (date monitored)**	**Other relevant designations**
Reefs	No current assessment	Berwickshire and North Northumberland Coast SAC
Rocky shore	No current assessment	Berwickshire Coast (intertidal) SSSI
Sea caves	Favourable - maintained (June 2003)	Berwickshire Coast (intertidal) SSSI; Berwickshire and North Northumberland Coast SAC
Grey seal	Favourable - maintained (November 2003)	SAC
Intertidal mudflats and sandflats	No current assessment	SAC
Shallow inlets and bays	No current assessment	SAC

Supralittoral rock (maritime cliff grassland) and rock exposures at Eyemouth Golf Course	Maritime cliff grassland and intertidal area at Lower Burnmouth
	

Past and present management

Due to the steep nature of the slopes of this section of the Berwickshire Coast, the cliffs of the SSSI have not been used for agricultural purposes to any significant extent in the past. There is some sheep grazing at the southern end of the site, but the majority of the site is ungrazed. The main east coast railway line runs parallel to much of the site, and has resulted in some remedial and embankment protection works being undertaken within the site to protect the railway line.

An area of SSSI grassland within Eyemouth golf course is currently managed under SNH's East Scotland Grassland Management Scheme (ESGMS). This includes prescriptions for cutting. The associated 5-year management agreement is due to expire in September 2011.

The development and enlargement of Eyemouth harbour, the extension of Eyemouth golf course, new housing at Gunsgreen and other industrial developments have taken place adjacent to this SSSI over recent years without obvious consequence to its natural features. Landslips at Lower Burnmouth from 2003 required slope stabilisation measures and ultimately widening of the coastal road in 2007 to ensure access to properties. The upgrade of the sewage treatment system and outfalls at Lower Burnmouth and Partanhall that was required to meet the Urban Waste Water Treatment Directive presented challenges to the SSSI, with this work finally completed successfully in 2010.

The Berwickshire Coastal Path runs along the cliff tops for much of the length of the site.

In the future the site could benefit from entry into an appropriate Rural Development Contract scheme run under the SRDP (available 2007-2013). This would help to enhance and maintain the maritime cliff grassland habitat through outcome-based prescriptions for cutting and a programme of weed control.

Objectives for Management

We wish to work with the owners and occupiers to protect the site and to maintain and where necessary enhance its features of special interest. SNH aims to carry out site survey, monitoring and research as appropriate to increase our knowledge and understanding of the site and its natural features and to monitor the effectiveness of its management.

The EU Habitats and Birds Directives oblige Government to avoid, in SACs and SPAs, the deterioration of natural habitats and the habitats of species, as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of these Directives. The objectives below have been assessed against these requirements. All authorities proposing to carry out or permit to be carried out operations likely to have a significant effect on the European interests of this SSSI must assess those operations against the relevant Natura conservation objectives (which are listed on our website through the SNHi - SiteLink facility).

1. To keep the geological exposures clearly visible and accessible.

No active management is currently required for this objective.

Any upgrading, repair or maintenance work required on the coastal road at Lower Burnmouth has the potential to damage the scientific interest of the site by obscuring rock outcrops. The amount of rock exposure affected must be minimised in any work that is required on this road.

The construction or extension of houses and other similar structures within the site could potentially damage the geological interest if development occurs on or near rock outcrops.

2. **To maintain the condition and extent of the coastal grassland habitat.**

   Grazing is usually the preferred management of grassland for nature conservation, the alternative being cutting. However, the physical nature of the coastal cliff makes it impractical to graze this grassland in places, and also to use machinery to cut it.

   Where it is possible to manage the coastal grassland by grazing, the ideal is for the stocking level and grazing periods to be managed to produce a sward structure of varying heights that provides ideal conditions for plants and invertebrates, including butterflies, moths and beetles. The sward should be at its longest in the summer, while plants are flowering and setting seed. Most grassland species germinate in the autumn or spring, so the sward should be shorter at these times to give light and space at ground level for new growth. The ideal management for coastal grassland is grazing to a sward height of less than 10 cm.

3. **To maintain suitable conditions for the notified fly assemblage.**

   This can be achieved through non-intervention management as the near vertical coastal cliff seepages are largely inaccessible to stock.

Other factors affecting the natural features of the site

The steep nature of the coastal cliffs along this SSSI makes it impractical to graze the grassland in places, and virtually impossible to use machinery to cut it. Fencing parts of the site to introduce stock is also impractical due to the nature of the cliffs and the intertidal area. As a consequence, the un-grazed areas of grassland are becoming rank. SNH accepts that the grassland cannot be actively managed in these areas of the SSSI.

The Berwickshire Coast is subject to the active natural process of coastal erosion, and there have been several localised rock falls and landslips along its length in recent years. The rock falls have not affected the geological features of the site to date. The landslips have resulted in small losses of the grassland feature, but these are temporary in nature as the affected areas re-vegetate naturally over time.

The seepage habitat may ‘move’ about on the cliff, perhaps drying up or becoming too thickly vegetated for the seepage fauna in one place but being rejuvenated at another location following minor landslips. Changes in the position, extent or quality of seepage habitat may depend upon this factor as well as on water supply and its course through the rock.

The shore-line and inshore communities of algae and invertebrates occupying the wave-cut platforms and rock faces of the inter-tidal area of the Burnmouth Coast SSSI are of international importance. For administrative reasons, these features are not part of this SSSI, but part of the Berwickshire Coast (intertidal) SSSI which overlies this site and is part of the Berwickshire & North Northumberland Coast Special Area of Conservation (SAC).

Management objectives for these features of interest are given in the Site Management Statement for the Berwickshire Coast (intertidal) SSSI. Although they are listed here for convenience, reference should be made to that SMS for further details.

1. To maintain the extent, physical structure and biological characteristics of the reefs and sea caves of the intertidal habitats, subject to natural change.
2. To maintain the biological, physical and chemical integrity of the site, subject to natural change, in a condition capable of supporting the characteristic range of marine species representative of the particular marine conditions at this site.

3. To ensure that all management functions are in accord with the scheme of management and conservation objectives for the Berwickshire and North Northumberland Coast SAC, by ongoing liaison with all other Relevant Authorities and users of the site through the SAC Management Group.

Date last reviewed: 16 March 2011