



# European Site Conservation Objectives: Supplementary advice on conserving and restoring site features

# Overstrand Cliffs Special Area of Conservation (SAC) (UK0030232)



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## **About this document**

This document provides Natural England's supplementary advice for the European Site Conservation Objectives relating to Overstrand Cliffs SAC.

This advice should therefore be read together with the SAC Conservation Objectives available <a href="here">here</a>.

This supplementary advice to the Conservation Objectives describes in more detail the range of ecological attributes which are most likely to contribute to a site's overall integrity and the minimum targets each qualifying feature needs to achieve in order to meet the site's objectives.

You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England, when developing, proposing or assessing an activity, plan or project that may affect this site. Any proposals or operations which may affect the site or its qualifying features should be designed so they do not adversely affect any of the attributes listed in the objectives and supplementary advice.

The tables provided below bring together the findings of the best available scientific evidence relating to the site's qualifying features, which may be updated or supplemented in further publications from Natural England and other sources. The local evidence used in preparing this supplementary advice has been cited. The references to the national evidence used are available on request. Where evidence and references have not been indicated, Natural England has applied ecological knowledge and expert judgement. You may decide to use other additional sources of information.

In many cases, the attribute targets shown in the tables indicate whether the current objective is to 'maintain' or 'restore' the attribute. This is based on the best available information, including that gathered during monitoring of the feature's current condition. As new information on feature condition becomes available, this will be added so that the advice remains up to date.

The targets given for each attribute do not represent thresholds to assess the significance of any given impact in Habitats Regulations Assessments. You will need to assess this on a case-by-case basis using the most current information available.

Some, but not all, of these attributes can also be used for regular monitoring of the actual condition of the designated features. The attributes selected for monitoring the features, and the standards used to assess their condition, are listed in separate monitoring documents, which will be available from Natural England.

These tables do not give advice about SSSI features or other legally protected species which may also be present within the European Site.

If you have any comments or queries about this Supplementary Advice document please contact your local Natural England adviser or email HDIRConservationObjectives@naturalengland.org.uk

# **About this site**

#### **European Site information**

Name of European Site Overstrand Cliffs Special Area of Conservation (SAC)

Location Norfolk

The designated boundary of the site can be viewed here using the

MAGIC website.

April 2005 **Designation Date** 

See below **Qualifying Features** 

**Designation Area** 30.02 hectares

**Designation Changes** Not applicable

**Feature Condition Status** Details of the feature condition assessments made at this site can be

found using Natural England's Designated Sites System

Names of component **Sites of Special Scientific** Interest (SSSIs)

Relationship with other

**European or International** Site designations

Overstrand Cliffs SSSI

Not applicable

## Site background and geography

Covering just over 30 hectares of the north-east Norfolk Coast between Cromer and Overstrand. Overstrand cliffs are one of the best examples of unprotected vegetated soft cliffs on the North Sea coast in the most easterly part of the UK.

The cliffs are up to 70 metres high in places and are composed of soft layers of sands and clays laid down during the Pleistocene period between 1.8 million and 12,000 years ago. They are characterised by freshwater seepages in places and are subject to erosion by the sea, which causes moderately frequent cliff-falls and landslips.

Much of the length of the cliffs is unprotected by sea defences and is therefore natural in character. The vegetation exhibits cycles of natural succession in response to active geomorphological processes. Firstly, 'ruderal' plants (those able to thrive on bare disturbed ground) colonise any eroded, newlyexposed sand and mud, followed over time by plants associated with more stable areas of grassland and scrub. Seepage areas support wet fen communities and, in places, reed-beds perched on the cliff slopes occur.

The diverse range of habitats associated with the sea cliffs is known to support an outstanding range of invertebrates, in particular specialist beetles and flies.

# About the qualifying features of the SAC

The following section gives you additional, site-specific information about this SAC's qualifying features. These are the natural habitats and/or species for which this SAC has been designated.

#### **Qualifying Habitats:**

#### H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts

Vegetated sea cliffs are steep slopes fringing hard or soft coasts, created by past or present marine erosion, and supporting a wide diversity of vegetation types with variable maritime influence. Exposure to the sea is a key factor in the type of sea cliff vegetation present, along with the cliff's geological structure and the active geomorphological processes affecting it.

'Soft' sea cliffs, such as those at this SAC, have a sloping or slumped profile, often with a distinct 'undercliff'; they occur on a range of soft rocks, or on hard rocks interspersed with softer deposits. These more mobile soft cliffs occur where there are unstable soft deposits such as mudstones or glacial drift deposits. They may be subject to mudslides or landslips, which result in a diverse mix of pioneer and more mature vegetation which reflect the varying degrees of instability and the age of the slope.

Overstrand cliffs are one of the best examples of unprotected vegetated soft cliffs on the North Sea coast in the most easterly part of the UK. The cliffs are up to 70 m high and are composed of Pleistocene sands and clays with freshwater seepages in places and are subject to moderately frequent cliff-falls and landslips. Much of the length is unprotected by sea defences and is therefore natural in character.

At this SAC, the vegetated sea cliffs feature comprises an exceptionally well-developed zonation of typical vegetation types, ranging from pioneer and ruderal vegetation to grassland, scrub and woodland communities. The bare cliff faces are characterised by bare ground and a naturally-occurring ruderal community where coltsfoot *Tussilago farfara* is typically dominant. These slopes are of particular interest for their associated specialised beetle fauna with a number of rare species represented. On more stable slopes, dry grasslands have developed, which support plants such as kidney vetch *Anthyllis vulneraria*, ribwort plantain *Plantago lanceolata*, sand sedge *Carex arenaria*, autumn hawkbit *Leontodon autumnalis*, yarrow *Achillea millefolium* and bird's-foot trefoil *Lotus corniculatus*.

Where freshwater seeps through the cliff sediments and emerges at the surface of the cliff face, wet flushes occur which are dominated by marsh horsetail *Equisetum palustre*, jointed rush *Juncus articulatus* and sea club-rush *Scirpus maritimus*. Patches of tall fen are also present here, typified by common reed *Phragmites australis* and reedmace *Typha angustifolia*.

In the better-drained parts of the flushes, the red form of the early marsh orchid *Dactylorhiza incarnata* var *coccinea* is frequent at its only East Norfolk locality, together with bee orchids *Ophrys apifera*, southern marsh orchids *Dactylorhiza praetermissa* and common spotted orchid *Dactylorhiza fuchsii*. These flushes are of considerable importance for several rare or notable species of soldier-flies.

Scrub and wind-stunted woodland dominated by sea buckthorn *Hippophae rhamnoides* and sycamore *Acer pseudoplatanus* are found on the cliff slopes towards the western end of the SAC.

#### **Qualifying Species:**

Not applicable.

Table 1: Supplementary Advice for Qualifying Features: H1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts

Attri	ibutes	Targets	Supporting and/or Explanatory Notes	Sources of site- based evidence (where available)
Extent and distribution	Extent of hard or soft cliff capable of supporting sea cliff vegetation	Maintain the total extent of the sea cliff system capable of supporting H1230 sea cliff vegetation of at least 2.3km in length.	There should be no measurable net reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored.  The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements given may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information.  The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations. Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis.  The whole sea-cliff system acts to provide the range and variation of vegetation types and mosaics with bare ground. Extent may be measured in different ways but there are issues with measuring area of vertical cliffs. Reduction in extent can include smothering of the cliff slope, cliff foot or cliff top surfaces with artificial or dumped materials.	NATURAL ENGLAND. 2014. Length of SAC measured from webmap on 21.10.14
	Distribution of sea cliff habitat and associated transitional habitats within the site	Maintain the distribution and continuity of the H1230 habitat and associated transitions to reflect the natural functioning of the sea cliff system	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat.  Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat	GOODGER, B. and others. 2004. Surveys of Overstrand Cliffs SSSI and cSAC. Natural England, Norfolk. (This report is located in the sites science file in the Natural England Norwich registry)

Attril	outes	Targets	Supporting and/or Explanatory Notes	Sources of site- based evidence (where available)
			which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature.  Transitions in sea-cliff habitat will include both cliff-top and cliff-foot transitions to terrestrial or marine habitats respectively.	
Extent and distribution	Future extent of sea cliff habitat within the site and ability to respond to seasonal changes	Maintain active natural processes such that the H1230 habitat can adjust to longer-term natural change, including landward recession, and that fluctuation in the extent of vegetated areas to bare rock can occur over time and space within the site.	This recognises the need to allow for natural fluctuations in the extent and the distribution of this habitat feature, often during particular seasons and usually as a result of natural coastal processes.  A full description of coastal processes operating in this area can be found in the current Shoreline Management Plan and North Norfolk District Council's Overstrand to Walcott Strategy Study.	EAST ANGLIA COASTAL GROUP 2012. Kelling to Lowestoft Ness Shoreline Management Plan (SMP 6) accessible at http://www.eacg.or g.uk/smp6.asp  NORFOLK COUNTY COUNCIL. 2005. The Overstrand to Walcott Strategy Study 2002-2005: accessible via http://www.northno rfolk.org/coastal/18 015.asp
Structure and function (including its typical species)	Mobility/ geomorphologi cal naturalness	Maintain the geomorphological naturalness of the sea cliff system from cliff top to foreshore connection	A key attribute in selecting this SAC for this habitat was that there was no or minimal artificial modification and the site demonstrated a high degree of geomorphological naturalness, which supports the long-term conservation of the site's structure and function.  At this site, some groynes and timber revetments are present on the foreshore but are no longer maintained and have an expected life of 10-15 years, during which time they may slow but not stop erosion, before becoming obsolete.	EAST ANGLIA COASTAL GROUP 2012. As above
	Presence of mosaic of	Maintain the full diversity and range of micro-habitats	Each site will have a different configuration of small-scale habitat influenced by cliff geology, hydrology and maritime exposure, which will also change	GOODGER, B. and others. 2004.

Attri	butes	Targets	Supporting and/or Explanatory Notes	Sources of site- based evidence (where available)
	microhabitats	associated with the H1230 feature, allowing bare areas to develop from active coastal processes/landslips	over time and space. The key aim is to maintain these in as natural and diverse a state as possible.  At this SAC, in a few places where chalk rafts are present there are hard unvegetated cliff faces present. Within the soft cliffs, bare cliffs are exposed in two positions: 1) at the back of landslides, and 2) at the toe of slides where active marine erosion has occurred. In both of these situations, colonisation by both bryophytes and vascular plants may occur	As above
	Vegetation structure - range of zones and successional/ transitional stages present	Maintain the range of vegetation zones and successional stages that are typical of the H1230 feature at this site	<ul> <li>This range of vegetation will be the result of the interaction between the geomorphological processes, landslips, maritime exposure/erosion and cliff morphology with colonising vegetation. The main vegetation types present on this site are: <ul> <li>Woodland communities dominated by sycamore Acer pseudoplatanus</li> <li>Scrub communities consisting of single stands of gorse Ulex europeas, sea buckthorn Hippophae rhamnoides or bramble Rubus fruticosus, along with smaller patches of willow Salix cinerea and areas with a mosaic of scrub</li> <li>Fern and tall herb communities, dominated by either bracken Pteridium aquilinum, clematis Clematis vitalba or thistles Cirsium spp. nettle Urtica dioica or willowherb Chamerion angustifolium</li> <li>Coastal communities consisting of strandline vegetation and various stages of dune formation;</li> <li>Coastal 'grassland' communities consisting of cliff-top grasslands and a very complex micro-mosaic of undercliff communities, including bryophytes dominated flushes</li> </ul> </li></ul>	
Structure and function (including its typical species)	Vegetation community composition	Ensure the component vegetation types of the H1230 feature are referable to and characterised by the following Phase 1 habitat types:  A1 Woodland A2 Scrub C1 Bracken C3.1 Tall ruderal vegetation H5 Strandline vegetation H6.8 Open dune H8.2 Soft Cliff	This habitat feature will typically comprise a number of associated seminatural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. Maintaining or restoring the feature's characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature.  This will also help to conserve their typical plant species (i.e. the constant and preferential species of each community or habitat type), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations). The presence, composition, location and extent of maritime scrub, heath and/or grassland, plus mosaics of the three, on cliff slopes or cliff tops will be	GOODGER, B. and others. 2004. As above

Attri	butes	Targets	Supporting and/or Explanatory Notes	Sources of site- based evidence (where available)
		H8.4 Coastal grassland (including cliff-top NVC types MG1 and U1f)	determined by the interaction of natural geomorphological processes with exposure, soil characteristics and management where relevant.  Due to the generally poor fit with the description of sea cliff vegetation types in the National Vegetation Classification (NVC), the <a href="Phase I Habitat Classification">Phase I Habitat Classification</a> has been adopted here.	
	Vegetation: undesirable species	Maintain the frequency and cover of the following undesirable species at acceptable levels and avoid changes in surface condition, soils, nutrient levels or changes to hydrology which may increase them;  • all woodland and scrub species	Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted succession to a different and less desirable state. Often they may be indicative of a negative trend relating to another aspect of a site's structure and function. These species will vary depending on the nature of the particular feature, and in some cases these species may be natural/acceptable components or even dominants. There are a range of non-native plants affecting coastal cliffs, and due to difficulties of access, these often pose problems with management.  The key objective is to prevent any introductions or planting. This includes the dumping of spoil or organic waste on cliff tops or slopes within or beyond the site boundary which may contain plant seeds or material which can then invade the site.  Woodland and scrub are a natural part of a mosaic of vegetation types to be expected on the site, their extent and state of development largely dependent of the degree and frequency of slippage events. So long as coastal processes are functioning and there is not artificial drainage at the top of the cliffs, then the cover of woodland and scrub should remain at acceptable levels	
Structure and function (including its typical species)	Typical species: flora and fauna	Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat;  Cliff pioneer species:  Coltsfoot Tussilago farfara mosses Pellia endiviifolia and Dicranella varvia Assemblage of beetles	The term 'typical species' is used in the Habitats Directive. They are an important and integral component of the structure and function of an Annex I habitat type and should contribute to achieving its overall favourable status across its natural range. However not all such species may be present in every habitat example, and there may be natural fluctuations in their frequency and cover. Similarly, the relative contribution made by each 'typical species' to the overall ecological integrity of a site will vary, and Natural England will provide bespoke advice on this where necessary.  Taking account of the principles given in current European Commission guidance, a 'typical species' is broadly described here as being any species (or community of species) which is particularly characteristic of, confined to	GOODGER, B. and others. 2004. As above TELFER, M. 2006 (see below)

Attributes		Targets	Supporting and/or Explanatory Notes	Sources of site- based evidence (where available)
		Cliff flushes:  • red form of Early Marsh Orchid Dactylorhiza incarnate var coccinea  • Assemblage of flies  Cliff grassland:  • Yarrow broomrape Orobanche purpurea	and/or dependent upon the qualifying Annex I habitat feature at a particular site. This may include those species which;  • are critical to the composition or structure of an Annex I habitat (e.g. those included as 'positive indicators' used to inform assessment of a habitat's condition and/or define the habitat (such as NVC community constant and preferential species [see also the targets for 'vegetation community composition' above]  • exert a critical positive influence on the Annex I habitat's structure or function (e.g. a bioturbator (mixer of soil/sediment), grazer, surface borer or predator)  • are consistently associated with, and strongly dependent upon, the Annex I habitat feature for specific ecological needs (e.g. feeding, sheltering), completion of life cycle stages (e.g. egg-laying) and/or during certain seasons/times  • are particularly distinctive or special components of the Annex I habitat feature at a particular site  The list of typical species given for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available or if our understanding of the term 'typical species' changes.  For this feature, typical species may be associated with the variety of different sub-habitats such as rock crevice, splash zone and ledge vegetation; maritime annual vegetation; soft cliff pioneer vegetation; soft cliff flush or wetland vegetation and soft cliff pioneer vegetation; soft cliff flush or wetland vegetation and soft cliff grassland or heath communities on slopes and/or adjacent cliff top.	
Structure and function (including its typical species)	Regeneration potential	Maintain the extent of seminatural vegetation on the cliff-top (either within and/or beyond the site boundary as appropriate), and its connectivity with the lower cliff slopes.	This is important to ensure that there is a continuous presence and supply of seed-rich semi-natural vegetation material from the cliff-tops above to feed the sea-cliff system below. As the top of the cliff slumps and recedes as a result of natural processes, the vegetation dropping onto the lower slopes should provide suitable material for their re-colonisation with native plant species from adjacent semi-natural habitats above.  The adjacent cliff top grassland comprises the Royal Cromer Golf Club and is a mixture of heavily modified greens and fairways, with some semi-natural vegetation present in the roughs.	
Supporting	Hydrology/	At a site level, maintain natural	Defining and maintaining the appropriate hydrological regime is a key step in	

Attril	butes	Targets	Supporting and/or Explanatory Notes	Sources of site- based evidence (where available)
processes (on which the feature relies)	drainage	hydrological processes to provide the conditions necessary to sustain the H1230 sea cliff feature within the site	moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts.  The hydrology of the site is described in sections 3.2 and 3.3 of Goodger and others 2004. It is thought that the extensive land slipping is due to water percolating through the porous sands and gravels until it meets a clay horizon which acts as an 'aquiclude' (or solid barrier to water flow)  The site's hydrology is also important for the distinctive group of invertebrates associated with the wet flush areas (Telfer 2006).	GOODGER, B. and others. 2004. As above.  TELFER, M. 2006. Invertebrate survey of the soft-rick cliffs of Norfolk. Buglife. Available as a pdf to download at: https://www.buglife.org.uk/campaigns-and-our-work/habitat-projects/soft-rock-cliffs-%E2%80%93-resources
	Coastal processes and cliff recession	Maintain the operation of natural coastal processes necessary to maintain cycles of cliff erosion and recession	These processes are critical to maintaining a characteristic and diverse sea cliff habitat feature.  Local cliff processes are described with cliffSCAPE modelling and cliff top recession analysis as part of North Norfolk District Council's Overstrand to Walcott strategy (2002-2005).  On the foreshore there are timber groynes along the length of the SAC and a section of revetment at the eastern end of the site. The SMP policy on this stretch of coast is managed realignment in the short term and no active intervention in the medium and long term and consequently these structures are no longer maintained. Their presence may slow erosion but does not completely stop it and they have an expected lifespan of 10-15 years.	NORFOLK COUNTY COUNCIL 2005. as above
Supporting processes (on which the feature relies)	Water quality	Where the feature is dependent on surface water and/or groundwater, ensure water quality and quantity is maintained to a standard which provides the necessary conditions to support	For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type.	

Attril	butes	Targets	Supporting and/or Explanatory Notes	Sources of site- based evidence (where available)
		the feature.	Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.	
	Air quality	Maintain or, where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.  Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition.  There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.  There is currently no critical load value available for this habitat on APIS. However, sea cliff habitat is considered to be sensitive to aerial nitrogen deposition which has the potential to accelerate grass growth, with adverse	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk)
Supporting processes (on which the feature relies)	Cliff morphology, slope and elevation	Maintain the natural coastal processes to determine sea cliff morphology, slope and elevation	effects on typical plants, and to affect sensitive moss species,  The geomorphology and topography of the SAC's locality is fully described in section 3.2 of Goodger and others (2004). Graham (1994) contains photos showing cliff morphology during the early 1990s.  On the foreshore there are timber groynes along the length of the site and a section of revetment at the eastern end of the site. The SMP policy on this stretch of coast is managed realignment in the short term and no active intervention in the medium and long term and consequently these structures are no longer maintained. Their presence may slow erosion but does not completely stop it and they have an expected lifespan of 10-15 years.	GRAHAM, S. 1994. Geological SSSI Management Brief for Overstrand Cliffs SSSI, English Nature, Norfolk. Paper copy in the Natural England Norwich registry.

Attributes	Targets	Supporting and/or Explanatory Notes	Sources of site- based evidence (where available)
			GOODGER, B. and others. 2004. As above.

#### **Version Control**

Advice last updated: N/A

Variations from national feature-framework of integrity-guidance: The following generic attributes for the H1230 feature are considered not relevant to this site:

- Vegetation structural diversity
- Physical features supporting vegetation: crevices, ledges, isolated stacks etc.
- Vegetation Community Composition this has been described using Phase 1 Habitat types not NVC apart from cliff top grassland
- Maritime exposure including salt spray effects.

Document control information			
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