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

Hastings Cliffs Special Area of Conservation (SAC) UK0030165

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About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Hastings Cliffs SAC. This advice should therefore be read together with the SAC Conservation Objectives available here.

The intertidal part of Hastings Cliffs SAC overlaps with Dungeness, Romney Marsh and Rye Bay SPA, therefore, you should also refer to the separate European Site Conservation Objectives and Supplementary Advice (where available) provided for that site.

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

This Supplementary Advice to the Conservation Objectives presents attributes which are ecological characteristics of the designated species and habitats within a site. The listed attributes are considered to be those that best describe the site's ecological integrity and which, if safeguarded, will enable achievement of the Conservation Objectives. Each attribute has a target which is either quantified or qualitative depending on the available evidence. The target identifies as far as possible the desired state to be achieved for the attribute.

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 HDIRConservationObjectivesNE@naturalengland.org.uk

About this site

European Site information

Name of European Site	Hastings Cliffs Special Area of Conservation (SAC)
Location	East Sussex
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	1 April 2005
Qualifying Features	See section below
Designation Area	183.72 hectares
Designation Changes	N/A
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)	Hastings Cliffs to Pett Beach SSSI
Relationship with other European or International Site designations	The intertidal part of Hastings Cliffs SAC overlaps with Dungeness, Romney Marsh and Rye Bay SPA.

Site background and geography

Hastings Cliffs are situated on the south coast between Hastings and Fairlight. The site is an area of actively eroding soft cliff that includes the most southerly exposures of the lower Hastings Beds. There are three valleys cut into the strata, which support woodland and scrub habitats with an unusual 'Atlantic' bryophyte flora. Closer to the sea the maritime influence stunts the trees, but other bryophytes become important here, with one species, fragrant crestwort *Lophocolea fragrans*, at one of only a handful of south-east England locations. Maritime scrub and coastal heathland are found closer to the cliff edge, with grassland supporting maritime species such as thrift *Armeria maritima*. The clay and sandstone cliff slopes support a range of habitats from bare ground and flushes to maritime grassland and scrub. Active natural coastal processes, including erosion, are necessary to maintain the successional development of habitats on this site.

The SAC is within the High Weald Area of Outstanding Natural Beauty (AONB) and the High Weald National Character Area (NCA Profile 122). It is important as it reveals where the Weald's geology of sands and clays is exposed at the coast. The cliffs show a complex pattern of faults, and their palaeobotanical and vertebrate palaeontological fossils are some of the best examples of their type in the world and dinosaur footprints and petrified forest are visible on low tides. The SAC in part overlaps with the Hastings Country Park Local Nature Reserve (LNR) designation. The geology of this site is extremely important as it supports the diverse range of habitats that comprise the SAC.

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 determinant of the type of sea cliff vegetation, as is cliff structure and geomorphological processes.

Hastings cliffs are 'soft' cliffs of clay and sandstone, and therefore have a sloping or slumped profile. The undercliff, mudslides and/or landslips create complex successional habitats ranging from bare ground and early pioneer habitats to climax mature ancient woodland. The maritime influence on cliff communities is shown in both vertical and lateral zonation. The effects of salt spray are greatest close to the sea and least at the cliff top, especially where a sloping profile sets this back from the shoreline.

The streams of three glens cut steep sided valleys which are covered in parts by mature woodland dominated by pedunculate oak *Quercus robur*. The ground flora varies from communities dominated by bracken *Pteridium aquilinum* on the sands to those dominated by dog's mercury *Mercurialis perennis* and pendulous sedge *Carex pendula* on the clays. These wooded streams are sheltered from frosts and support 'Atlantic' bryophytes such as the river pocket-moss *Fissidens rivularis* and Dumortier's liverwort *Dumortiera hirsuta*. These three glen streams are also important for freshwater beetles, with the only known record for *Hydraena pygmaea*.

Near the coast the trees become progressively more affected by salt spray from the sea and at Covehurst Wood there are extremely stunted trees growing on acidic sandstone boulders. Here there is an important bryophyte flora including the liverwort *Lophocolea fragrans*.

The woodlands grade into coastal scrub along the cliff edges, consisting of wind-pruned thickets of privet *Ligustrum vulgare* and blackthorn *Prunus spinosa*. Thrift *Armeria maritima* is common along the cliff edge with the scarce loose silky-bent *Aspera spica-venti*.

At Firehills there is an area of coastal heathland, where management is ongoing to clear areas of bracken *Pteridium aquilinum* and gorse *Ulex europaeus*, to encourage growth of ling *Calluna vulgaris* and bell heather *Erica cinerea*.

Qualifying Species:

Not applicable.

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

Attributes		Targets	Supporting and 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 cliff system which is capable of supporting H1230 sea cliff vegetation to at least 4.6km in length.	There should be no measurable 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 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 cliff slope, cliff foot or cliff top surfaces by artificial or dumped materials. This feature has not been properly mapped. It is however clear that extent is very difficult to measure or estimate, and is also subject to natural change beyond our control to manage. Indeed the type of vegetation that develops following a cliff fall is very much influenced by the nature of the final substrate and its topography. A further influence is the habitat at the cliff top. Scrub and woodland stabilises the cliff, whereas open habitats including grassland and heathland are more likely to slump, creating the early successional habitats necessary for the functioning of the SAC.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution	**Future extent of habitat within the site and ability to respond to seasonal changes**	Maintain active processes such that the system can adjust to longer-term natural change, including landward recession, and that fluctuations in the extent of vegetated areas to bare rock 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 the coastal processes acting in this area can be found in the Shoreline Management Plan for the area, which sets out a policy of 'no active intervention' for the undefended cliffs of the SAC. As well as being influenced by the coast, natural cliff processes are maintained by the hydrology of the glen streams, seepages and springs.	SE Coastal Group. 2006. South Foreland to Beachy Head Shoreline Management Plan. Can be accessed at: https://www.se-coastalgroup.org.uk/sf-to-bh-2006/
Extent and distribution	**Spatial distribution of the feature within the site**	Restore the distribution and continuity of the habitat and any associated transitions which reflects the natural functioning of the cliff system	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) 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 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 include cliff top and cliff foot transitions to terrestrial or marine habitats. Restoration of some open habitat at the cliff top is necessary as this habitat is more likely to slump over the cliff edge, creating the succession of habitat necessary to maintain the SAC	Kaupe, S. 2015. Survey of Vascular Plant Assemblage of Hastings Cliff to Pett Beach SSSI. Unpublished Report. (Available from Natural England on request)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			feature.	
Structure and function (including its typical species)	**Geo-morphological naturalness**	Maintain the geomorphological naturalness of the sea cliff system (from cliff top to foreshore connection with the intertidal zone	The physical landforms associated with this habitat feature, and the processes that shape them, will be a primary influence on sea-cliff habitat. A key criteria for selecting SACs for this habitat feature was that they had no or minimal artificial modification and so demonstrates good geomorphological naturalness. Having a well-developed sea-cliff structure, shaped by natural geomorphological and hydrological processes, will ensure the full range of natural variation can occur.	SE Coastal Group. 2006. South Foreland to Beachy Head Shoreline Management Plan. Can be accessed at: https://www.se-coastalgroup.org.uk/sf-to-bh-2006/
Structure and function (including its typical species)	**Key structural, influential and/or distinctive species**	Restore the abundance of the typical species listed below to enable each of them to be a viable component of the H1230 habitat; • Constant and preferential plant species of MC8, U1, MG5, H2, W10, W7 and W21 vegetation types that form a key component of the H1230 feature at this site. Bryophyte assemblage including Dumortier's liverwort *Dumortiera hirsuta*; River pocket-moss *Fissidens rivularis*; and Fragrant crestwort *Lophocolea fragrans*	Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include; • **Structural** species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). • **Influential** species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat) • **Site-distinctive** species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. There may be natural fluctuations in the frequency and cover of each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here 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	Kaupe, S. 2015. Survey of Vascular Plant Assemblage of Hastings Cliff to Pett Beach SSSI. Unpublished Report (Available on request from Natural England)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			about this site becomes available. For this feature, typical species may be associated with a variety of different sub-habitats such as rock crevice, splash zone and ledge vegetation; maritime therophyte (annual) vegetation; soft cliff pioneer vegetation; soft cliff flush or wetland vegetation and soft cliff grassland or heath communities on slopes and/or adjacent cliff tops .	
Structure and function (including its typical species)	**Presence of mosaic of microhabitats**	Maintain the diversity and range of microhabitats and bare areas resulting from active coastal processes/landslips	Each site will have a different configuration of geology and hydrology and maritime exposure, which will also change over time and space. The key aim is to maintain the full, naturally expected range of these in as natural a state as possible.	Kaupe, S. 2015. Survey of Vascular Plant Assemblage of Hastings Cliff to Pett Beach SSSI. Unpublished Report (Available on request from Natural England)
Structure and function (including its typical species)	**Regeneration potential**	Restore semi-natural vegetation on the cliff-top (either within 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 supply of seed-rich semi-natural vegetation material from the clifftops 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. It is necessary to restore some open habitat on the cliff top (e.g. grassland or heathland), as this is more likely than scrub or woodland to slump and create the early successional habitat required for the functioning of the SAC.	
Structure and function (including its typical species)	**Vegetation community composition**	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification types • MC8 *Festuca rubra - Armeria maritima* grassland	This habitat feature will comprise a number of associated semi-natural 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. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining or restoring these 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 a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).	Kaupe, S. 2015. Survey of Vascular Plant Assemblage of Hastings Cliff to Pett Beach SSSI. Unpublished Report (Available on request from Natural England) Natural England. 2010. Favourable condition table for Hastings Cliff to Pett Beach SSSI.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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 determined by the interaction of natural geomorphological processes with exposure and soil characteristics and management where relevant. Assigning NVC communities to undercliff vegetation is difficult due to the problems in studying this habitat and the dynamic nature of the habitat. It is expected that other NVC communities will be present and will include a range of types including maritime annual (therophyte) vegetation, soft-cliff flushes, grassland, scrub, rock crevice and cliff ledge vegetation including 'perched saltmarsh' and 'seabird cliff communities' As well as the main MC8 maritime community, the following communities are also present U1, MG5, H2, W10, W7 and W21.	
Structure and function (including its typical species)	**Vegetation: undesirable species**	Restore as necessary the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread,	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 propagules or enrich the site. Undesirable species include: Hottentot fig *Carpobrotus edulis, Rhododendron ponticum, Gaultheria shallon, Fallopia japonica*	Kaupe, S. 2015. Survey of Vascular Plant Assemblage of Hastings Cliff to Pett Beach SSSI. Unpublished Report (Available from Natural England on request)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting processes (on which the feature relies)	**Air quality**	Restore as necessary the 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. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. 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 for nutrient nitrogen 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 effects on typical plants, and to affect sensitive moss species.	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 processes that determine cliff morphology, slope and elevation	These physical components greatly influence the structure of this habitat type. Allowing natural dynamic processes to operate is important to providing optimal conditions which will allow the long-term conservation of this habitat feature. Interruption of these processes, through partial stabilisation or slowing of cliff erosion and recession rates, with artificial management of cliff slope vegetation, does not produce naturally-occurring conditions which could lead to undesirable	SE Coastal Group. 2006. South Foreland to Beachy Head Shoreline Management Plan. Can be accessed at: https://www.se-coastalgroup.org.uk/sf-to-bh-2006/

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			changes in characteristic sea cliff vegetation.	
Supporting processes (on which the feature relies)	**Hydrology/ drainage**	At a site, unit and/or catchment level, (as appropriate) restore as necessary natural hydrological processes to provide the conditions necessary to sustain the feature within the site	Defining and maintaining the appropriate hydrological regime is a key step in 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.	Natural England. 2014. Site Improvement Plan for Hastings Cliffs. (SIP Profile 101)
Supporting processes (on which the feature relies)	**Physical features supporting vegetation: crevices, ledges, isolated stacks etc.**	Maintain the associated physical components of the vegetated cliff feature (crevices, ledges, isolated stacks) with changes to them determined by natural processes only	Cliff structure and geomorphological processes are major influences on sea-cliff vegetation. 'Hard' cliffs with vertical or very steep faces are characteristic of hard igneous, metamorphic and sedimentary rocks and also of chalk, which, although a soft rock, nevertheless forms vertical cliffs. More mobile 'Soft' cliffs have a sloping or slumped profile, often with a distinct 'undercliff'; these occur on a range of soft rocks, or on hard rocks interspersed with softer deposits and may be subject to mudslides or landslips. These processes all create smaller structural elements such as ledges, crevices and stacks which create complexes of pioneer and more mature vegetation which are typical of this habitat feature.	SE Coastal Group. 2006. South Foreland to Beachy Head Shoreline Management Plan. Can be accessed at: https://www.se-coastalgroup.org.uk/sf-to-bh-2006/
Supporting processes (on which the feature relies)	**Water quality**	Where the feature is dependent on surface water and/or groundwater, restore water quality and quantity to a standard which provides the necessary conditions to support the feature.	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. 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.	Natural England. 2014. Site Improvement Plan for Hastings Cliffs. (SIP Profile 101)
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