



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

**Rook Cliff Special Area of Conservation (SAC)
Site Code: UK0030058**



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Date of Publication: 11 February 2019

About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Rook Clift SAC.

This advice should therefore be read together with the SAC Conservation Objectives available [here](#)

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	Rook Clift Special Area of Conservation (SAC)
Location	West 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	10.62 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)	Rook Clift SSSI
Relationship with other European or International Site designations	None

Site background and geography

Rook Clift is a small wooded combe on the scarp slope of the South Downs, within the South Downs National Character Area ([NCA Profile 125](#)). The soils are predominantly calcareous in nature, overlying the chalk of the Downs. Deeper soils occur at the foot of the slope, and also the course of a stream, arising within the wood.

This site is an ancient woodland which remains in a semi-natural condition. Large-leaved lime *Tilia platyphyllos* dominates the canopy, together with some ash *Fraxinus excelsior* and beech *Fagus sylvatica*. It lies on the deeper soils towards the base of the slope and valley bottom of the small wooded combe, which gives the site its humid microclimate. The soils are rather deeper and there is less exposed rock at this site because the chalk is more readily weathered than the limestones on which many of the other sites lie. Despite this, the vegetation is otherwise typical of the habitat type, with an abundance of ferns such as hart's-tongue *Phyllitis scolopendrium* and shield-fern *Polystichum* spp. In addition to species more common in the

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:

Annex I habitats that are a primary reason for selection of this site

- **H9180 Tilio-Acerion forests of slopes, screes and ravines * Priority feature**

Rook Clift is the largest known remnant stand of Tilio-Acerion forests dominated by large-leaved lime *Tilia platyphyllos* in the south of England. It lies on the deeper soils towards the base of the slope and valley bottom of a small wooded combe, which gives the site its humid microclimate. The soils are rather deeper and there is less exposed rock at this site because the chalk is more readily weathered than the limestones on which many of the other sites lie. Despite this, the vegetation is otherwise typical of the habitat type, with an abundance of ferns such as hart's-tongue *Phyllitis scolopendrium* and shield-fern *Polystichum* spp. In addition to species more common in the west of Britain, continental species such as Italian lords-and-ladies *Arum italicum* also occur.

Qualifying Species:

None

Table 1: Supplementary Advice for Qualifying Features: H9180. Tilio-Acerion forests of slopes, screes and ravines; Mixed woodland on base-rich soils associated with rocky slopes *

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	Extent of the feature within the site	Maintain the total extent of the feature to 10.69 hectares	There should be no measurable reduction (excluding any trivial loss) in the extent and area of this woodland feature. Any loss of woodland area - whether at the edge or in the middle of a site will reduce the core woodland area where woodland conditions are found - these support significant assemblages of species dependent on woodland conditions (e.g. lichens and bryophytes - being one example). Loss of any woodland area which fragments a site into different parts will clearly disturb the movement of species between the remaining parts of the woodland.	Natural England (2008) Definition of Favourable Condition – Rook Clift SSSI (Available on request from Natural England)
Extent and distribution of the feature	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	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.	
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 <i>W8 Fraxinus excelsior – Acer campestris</i> <i>W12 – Fagus sylvatica – Mercurialis perennis</i>	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 attribute will be periodically monitored as part of Natural England's SSSI condition assessments
Structure and function (including its typical species)	Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the feature, which will typically be between 40-90% of the site	Canopy cover is the overall proportion of vegetative cover consisting of any woody layer ranging from established regeneration to mature and veteran stages. Woodland canopy density and structure is important because it affects ecosystem function and in particular microclimate, litterfall, soil moisture, nutrient turnover and shading; this in turn influences the	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>composition of plants and animals in lower vegetation layers and soil.</p> <p>Open canopies with just scattered trees will have less of a woodland character and reduced diversity of woodland-dependent species (although they may be still be important as a form of woodland-pasture). Completely closed canopies across the whole woodland are not ideal either however, as they cast heavier shade and support fewer species associated with edges, glades and open grown trees, and have little space where tree regeneration could occur.</p>	
Structure and function (including its typical species)	Vegetation structure - open space	Maintain areas of permanent/temporary open space within the woodland feature, typically to cover approximately 10%of area	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. Having some open, sunlit and largely tree-less areas as part of the woodland community is often important to facilitate natural tree and shrub regeneration and also to provide supporting habitat for specialist woodland invertebrates, birds, vascular and lower plants. Such open space can be permanent or temporary and may consist of managed grazed areas, linear rides and glades, or naturally-produced gaps caused by disturbance events such as windthrow/fire/tree falling over/snow damage.	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
Structure and function (including its typical species)	Vegetation structure - old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands	<p>Good woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. For this habitat type, old or over-mature elements of the woodland are particularly characteristic and important features, and their continuity should be a priority.</p> <p>This 10 ha woodland is small and for a healthy woodland</p>	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			ecosystem, the management of the wider landscape is key. The unique feature of Rook Cliff is the occurrence of so many large leaved limes which should be conserved.	
Structure and function (including its typical species)	Vegetation structure - dead wood	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m ³ per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, and >10 standing dead trees per hectare	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. There is ash dieback all along the escarpment of the South Downs and increasing dead wood within woodlands. Monitoring for disease resistant ash and risk to key lime trees from ash tree collapsing onto the lime trees should be monitored and if necessary woodland management undertaken.	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
Structure and function (including its typical species)	Vegetation structure - age class distribution	Maintain age where possible	A distribution of size and age classes of the major site-native tree and shrub species that indicate the woodland will continue in perpetuity, and will provide a variety of the woodland habitats and niches expected for this type of woodland at the site in question. This is a small woodland in a wider wooded landscape. The emphasis should be on a landscape scale approach but recognising the large leaved lime character of Rook Cliff.	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
Structure and function (including its typical species)	Vegetation structure - shrub layer	Maintain an understorey of shrubs cover 20 - 60% of the stand area (this will vary with light levels and site objectives)	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context.	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
Structure and function (including its typical species)	Vegetation structure - woodland edge	Maintain a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.	Woodland edge is defined as being the transitional zone between the forest feature and adjacent but different habitat types - the best woodland edges will have a varied structure in terms of height and cover. Many typical forest species make regular use of the edge habitats for feeding due to higher herb layer productivity and larger invertebrate populations.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Grasslands / arable fields managed with high doses of agro-chemicals could potentially not allow this gradation of woodland edge and could have other impacts on the integrity of the site (pollution/ nutrient enrichment etc).	
Structure and function (including its typical species)	Adaptation and resilience	Maintain the resilience of the feature by ensuring a diversity of site-native trees (at least 4 site native tree species) eg ash/ large-leaved lime/ sycamore/ is present across the site.	<p>This recognises the increasing likelihood of natural habitat features needing to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary.</p> <p>The overall vulnerability of this particular SAC to climate change has been assessed by Natural England as being low, taking into account the sensitivity, fragmentation, topography and management of its habitats.</p> <p>This means that some adaptation action for specific issues may be required, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the habitat into more varied landscapes and addressing particular management and condition issues. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be required</p> <p>Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.</p> <p>Much of the Sussex Chalk escarpment woodlands are infected with Ash dieback. It is thought that between 5-10% ash trees should survive.</p>	<p>NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Browsing and grazing by herbivores	Maintain browsing at a (low) level that allows well developed understorey with no obvious browse line, & lush ground vegetation with some grazing sensitive species evident (bramble, ivy etc), and tree seedlings and sapling common in gaps.	<p>Herbivores, especially deer, are an integral part of woodland ecosystems. They are important in influencing woodland regeneration, composition and structure and therefore in shaping woodland wildlife communities. In general, both light grazing and browsing is desirable to promote both a diverse woodland structure and continuous seedling establishment.</p> <p>Short periods with no grazing at all can allow fresh natural regeneration of trees, but a long-term absence of herbivores can result in excessively dense thickets of young trees which shade out ground flora and lower plant species. However, heavy grazing by deer or sheep prevents woodland regeneration, and can cause excessive trampling and/or poaching damage, canopy fragmentation, heavy browsing, barkstripping and a heavily grazed sward.</p> <p>The Sussex Deer Initiative and Forestry Commission are active in the wider Sussex Downland. Populations of Fallow Deer have grown. Muntjac deer are known in West Sussex. No known damage from herbivores at Rook Cliff.</p>	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
Structure and function (including its typical species)	Regeneration potential	Maintain the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate	The regeneration potential of the woodland feature must be maintained if the wood is to be sustained and survive, both in terms of quantity of regeneration and in terms of appropriate species. This will include regeneration of the trees and shrubs from saplings or suckers, regrowth from coppice stools or pollards, and where appropriate planting. Regeneration from existing limes might be an opportunity to maintain the genetic population.	This is a small woodland and opportunities should be sought in the surrounding landscape to manage woodlands or plant new areas for the benefit of biodiversity.
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat:	<p>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;</p> <ul style="list-style-type: none"> • Structural species which form a key part of the Annex I 	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<ul style="list-style-type: none"> Constant and preferential plant species of the W8 and W12 woodland NVC vegetation types at this SAC Large-leaved lime <i>Tilia platyphyllos</i> 	<p>habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition').</p> <ul style="list-style-type: none"> 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. <p>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 about this site becomes available.</p> <p>The large leaved limes occur on the lower land. The scarp slope is secondary woodland. The distribution of the large leaved lime is unusual in both number of trees (60-100) and there are only a handful of other lime trees spread along the chalk escarpment in West Sussex and Hampshire (Flora of Sussex 2018)</p>	
Structure and function (including its typical species)	Invasive, non-native and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the feature	Invasive or introduced non-native species are a serious potential threat to the biodiversity of native and ancient woods, because they are able to exclude, damage or suppress the growth of native tree, shrub and ground species (and their associated typical species), reduce structural diversity and prevent the natural regeneration of characteristic site-native species. Once established, the measures to control such species may also impact negatively on the features of interest (eg use of broad spectrum pesticides). Such species can include Rhododendrons, snowberry, Japanese knotweed, giant	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>hogweed and Himalayan balsam, for example. Similarly, this would include pheasants, rabbits and non-native invertebrate 'pest' species.</p> <p>No known invasive species are at this site. Sycamore could be considered a dominant tree that may be invasive. As a non-intervention woodland, monitoring canopy composition of tree species is to be encouraged.</p>	
Structure and function (including its typical species)	Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the habitat.	Soil is the foundation of basic ecosystem function and a vital part of the natural environment. Its properties strongly influence the colonisation, growth and distribution of those plant species which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature.	
Supporting processes (on which the feature relies)	Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	<p>This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. These connections may take the form of landscape features, such as habitat patches, hedges, watercourses and verges, outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site.</p> <p>These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.</p>	
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	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	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

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		feature of the site on the Air Pollution Information System (www.apis.ac.uk).	<p>associated with it.</p> <p>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 (NO_x) 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.</p> <p>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.</p>	(www.apis.ac.uk).
Supporting processes (on which the feature relies)	Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the feature	<p>Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England.</p> <p>This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p>	
Version Control				
Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: The attribute for light pollution has been removed as Rook Clift SAC is in an International Dark Skies Reserve as part of the South Downs National Park. The attribute for Hydrology was also removed as the SAC is not connected to a river catchment or subject to abstractions.				