



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

**The Stiperstones and The Hollies Special Area of Conservation (SAC)
Site Code: UK0012810**



Photograph: Stiperstones Ridge - D. Cragg, Natural England 13th July 2009

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About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to The Stiperstones and The Hollies SAC.

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

This advice replaces a draft version dated 21 January 2019 following the receipt of comments from the site's stakeholders.

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	The Stiperstones and The Hollies Special Area of Conservation (SAC)
Location	Shropshire
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	602.18ha
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)	The Stiperstones & The Hollies SSSI
Relationship with other European or International Site designations	Not applicable

Site background and geography

The Stiperstones and The Hollies SAC covers the central Stiperstones ridge which runs southwest of Shrewsbury towards Bishops Castle; it lies within Shropshire Hills National Character Area ([NCA Profile 65](#)) and aligns with The Stiperstones and The Hollies SSSI. The majority of the SAC is managed as Stiperstones National Nature Reserve by Natural England, with other significant areas owned and managed by Shropshire Wildlife Trust and several private landowners, most notably Linley Estate to the far south.

The prominent Stiperstones quartzite ridge, dominated by a series of dramatic tors, supports extensive and varied heathland vegetation showing transitions between southern lowland and northern upland heaths. This heathland vegetation varies with altitude and aspect, particularly evident in the steep sided valleys on the western side where bell heather *Erica cinerea* and western gorse *Ulex gallii* are characteristic of south facing slopes, whereas on north facing slopes bilberry *Vaccinium myrtillus* is particularly abundant over a thick and continuous layer of bryophytes including various *Sphagnum* moss species. On higher ground, cowberry *Vaccinium vitis-idaea* and crowberry *Empetrum nigrum* are significant components of the heathland. Typical heathland herbs include heath bedstraw *Galium saxatile*, tormentil *Potentilla erecta* and common cow-wheat *Melampyrum pratense*. Heather *Calluna vulgaris* is abundant or dominant in all these communities. The tors and boulders of the upper slopes also provide important habitat for several species of moss and support a diverse lichen flora. In amongst the heath, groundwater springs and seepages emerge from the fractured bedrock around and below which various types of mires have developed, and these form transitions with the dry heath.

The SAC woodland feature is found at Resting Hill near Snailbeach. This is more-or-less pure oak, partly coppice origin, partly maidens, probably cut over in last 70 years, though there are a few larger open grown trees at the top edge. There is the occasional birch *Betula* spp., holly *Ilex aquifolium* and

rowan *Sorbus aucuparia* with a variable ground flora with bramble *Rubus fruticosus*, bracken *Pteridium aquilinum*, creeping soft grass *Holcus mollis* all locally common. Elsewhere there is wavy hair grass *Deschampsia flexuosa* and scattered leggy heather *Calluna vulgaris* bushes. There is also a little hard fern *Blechnum spicant* and bilberry *Vaccinium myrtillus*. The moss carpets, typical of upland oakwoods further west are relatively species-poor with patches of forkmoss *Dicranum* spp and bank haircap moss *Polytrichum formosum*. Rocky outcrops have a thin cover of lichens, some of which may be of at least country interest.

A good proportion of the upland oak woodland has been returned to, and is managed as oak coppice with standards, which is in line with its history. Although both The Hollies, and Brook Vessons are renowned for their veteran trees populations (reflected as a SSSI interest feature), neither of these fit the SAC interest feature.

The Stiperstones has a rich cultural and industrial history. At its centre is a common which is grazed with sheep and cattle by two of three registered rights holders. Within the common is Castle Ring Iron Age hillfort and cairns which are designated as Scheduled Monuments. Remains of later settlements are also present, often associated with former lead, zinc and barite mining industries of national importance. The remains of settlements at Blakemoorflat and Blakemoorgate also hold Scheduled Monument status, with distinctive squatter cottages recently restored at the latter site.

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:

- **H4030 European dry heaths**

This site in central Britain is an example of European dry heaths that contains features transitional between lowland heathland and upland heather moorland. The most extensive vegetation type present is H12 *Calluna vulgaris* – *Vaccinium myrtillus* dry heath, which is characteristic of the uplands. South-facing slopes support stands of H8 *Calluna vulgaris* – *Ulex gallii* heath, a predominantly lowland vegetation community of south-west Britain, while north west-facing humid, sheltered slopes support vegetation with similarities to the oceanic H21 *Calluna vulgaris*-*Vaccinium myrtillus*-*Sphagnum capillifolium* heath. This latter type is particularly vulnerable to damage by burning.

- **H91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles**

Established oak coppices are present to the north of the ridge at Resting Hill and this community type extends south into smaller pockets at the base of Castle Ring and Crowsnest Dingle. The woodland vegetation is a mosaic of W10 *Quercus robur*-*Pteridium aquilinum*-*Rubus fruticosus* woodland with patches of W16 *Quercus spp.*-*Betula spp.*-*Deschampsia flexuosa* woodland. Much of the woodland has been cut over repeatedly cut over circa 1925. There is the occasional birch but otherwise the main woody-species diversity is provided by the understorey. Holly is well established with Rowan saplings are also frequent. The ground flora is somewhat variable but *Rubus fruticosus*, *Pteridium aquilinum*, *Holcus mollis* are all locally common. Elsewhere *Deschampsia flexuosa* and scattered leggy heather bushes point to W16. *Blechnum spicant* and *Vaccinium myrtillus* occur though more rarely. The moss carpets, typically of upland oakwoods further west are hardly represented, with just some patches of *Dicranum spp* and *Polytrichum formosum*.

The northern end of the ridge, known as The Hollies, is an area of 'holly parkland' of great antiquity and considered to be unique for both its size and for the age of the holly *Ilex aquifolium* trees. It is possible that this area may have been derived from former oak woodland with the oaks having been removed and the holly understorey exploited as a source of browse. However it is currently managed as a wood pasture for this population of veteran trees.

Other woodland stands at Mytton Dingle and the northwest fringes of the Stiperstones predominantly comprise a mix of downy birch and silver birch with occasional rowan. These secondary growth compartments are thought to be less than 50 years old.

Qualifying Species:

There are no Annex II species that are a primary reason for selection of this site, and no Annex II species present as a qualifying feature, but not a primary reason for site selection.

Table 1: Supplementary Advice for Qualifying Features: H4030. European dry heaths

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 406.8 hectares. This includes restoration from 36.2ha of scrub.	<p>There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature. 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.</p> <p>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.</p> <p>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.</p>	<p>Cox, J., & Aitchison, J. (1994).</p> <p>Eades, P., Tratt, R. & Shaw, S.C. (2013).</p> <p>Eades, P & Tratt, R. (2016)</p> <p>English Nature. (1966 - 2012).</p> <p>Latham, M. (2015).</p> <p>Natural England. (2010).</p> <p>Newton, M. (1992).</p> <p>Newton, M. (2009).</p> <p>Pendleton, E. & Eades. P. (2016).</p> <p>Thorne, K. (2002).</p> <p>Whild, S. & Lockton, A. (2009)</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>
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	See references in Extent of feature within site attribute

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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.</p> <p>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.</p>	
Structure and function (including its typical species)	Vegetation community composition	<p>Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification types:</p> <p>H8, <i>Calluna vulgaris</i> – <i>Ulex galli</i> heath,</p> <p>H9, <i>Calluna vulgaris</i>-<i>Deschampsia flexuosa</i> heath</p> <p>H12, <i>Calluna vulgaris</i> – <i>Vaccinium myrtillus</i> heath,</p> <p>H21, <i>Calluna vulgaris</i>-<i>Vaccinium myrtillus</i>-<i>Sphagnum capillifolium</i> heath</p>	<p>This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, geology and hydrogeology, 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).</p> <p>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).</p>	<p>See references in Extent of feature within site attribute</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Vegetation community transitions	Maintain any areas of transition between this and communities which form other heathland-associated habitats, such as dry and humid heaths, mires, acid grasslands, scrub and woodland.	<p>Transitions/zonations between adjacent but different vegetation communities are usually related to naturally-occurring changes in geology, hydrology, soil, aspect or slope. Such 'ecotones' retain characteristics of each bordering community and can add value in often containing species not found in the adjacent communities. Retaining such transitions provide further diversity to the habitat feature, and support additional flora and fauna. This is an important attribute as many characteristic heathland species utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle.</p> <p>Heathland associated habitats that are also SSSI interest features include:</p> <p>M6 – <i>Carex echinata</i> – <i>sphagnum recurvum/ auric ulatum</i> mire. M10 – <i>Carex dioica</i> – <i>Pinguicula vulgaris</i> mire M14 - <i>Schoenus nigricans</i>-<i>Narthecium ossifragum</i> mire M21 – <i>Narthecium ossifragum</i> – <i>Sphagnum papillosum</i> mire M22 - <i>Juncus subnodulosus</i>-<i>Cirsium palustre</i> fen-meadow M23 – <i>Juncus effusus/acutiflorus</i> – <i>Galium palustre</i> rush-pasture M29 – <i>Hypericum elodes</i> – <i>Potamogeton polygonifolius</i> soakway U1e – <i>Festuca ovina</i> – <i>Agrostis capillaris</i> – <i>Rumex acetosella</i> grassland</p>	See references in Extent of feature within site attribute
Structure and function (including its typical species)	Vegetation structure: cover of dwarf shrubs	Maintain an overall cover of dwarf shrub species which is typically between 25-90%	<p>Variation in the structure of the heathland vegetation (vegetation height, amount of canopy closure, and patch structure) is needed to maintain high niche diversity and hence high species richness of characteristic heathland plants and animals. Many species also utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle.</p> <p>The structural character of the heathland feature is strongly influenced by the growing habits of its dominant species which in most cases will be ericoids (i.e. plants that look like heathers, including members of the Ericaceae and Empetraceae families). The ericaceous species heather or ling <i>Calluna</i></p>	<p>See references in Extent of feature within site attribute</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<i>vulgaris</i> , bell heather <i>Erica cinerea</i> , cross-leaved heath <i>Erica tetralix</i> , bilberry or whinberry <i>Vaccinium myrtillus</i> and cowberry <i>Vaccinium vitis-idaea</i> are the commonest and most characteristic dwarf-shrubs. <i>Calluna</i> is usually the most abundant. Crowberry <i>Empetrum nigrum</i> , another common species in some coastal and transitional heaths, is not strictly ericaceous but is often treated as an ericoid species.	
Structure and function (including its typical species)	Vegetation composition: bracken cover	Restore aiming to maintain a cover of dense bracken which is low, typically <5%	The spread of bracken <i>Pteridium aquilinum</i> is a problem on many upland and lowland heathlands. The unpalatable nature and density of bracken as a tall-herb fern, and its decomposing litter, can smother and shade out smaller and more characteristic heathland vegetation. Usually active management of bracken is required to reduce or contain its cover across this habitat feature. But this fern has also nature conservation value, for example for fritillary butterflies and Whinchat.	See references in Extent of feature within site attribute This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Structure and function (including its typical species)	Vegetation structure: cover of gorse	Maintain cover of common gorse <i>Ulex europaeus</i> at <25% and the combined cover of <i>U. europaeus</i> and <i>U. gallii</i> at <50%.	Gorse as a component of heathland is a very valuable wildlife habitat, and often a marker of relict heath and common. Both dense and spiny, it provides good, protected cover for many wildlife species: birds, mammals and reptiles; breeding habitat for rare or declining bird species, and excellent winter roosting. The flowers, borne at a time of year when other sources of pollen or nectar are in short supply, are particularly good for insects and other invertebrate pollinators. However gorse may cause problems if unchecked by dominating an area, eliminating other typical heathland species. Mature stands <i>en masse</i> may also be serious fire hazards. Gorse cover is not regarded as a problem for this site currently.	See references in Extent of feature within site attribute This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Structure and function (including its typical species)	Vegetation structure: tree cover	Maintain the open character of the feature, with a typically scattered and low cover of trees and scrub <20% cover.	Scrub (mainly trees or tree saplings above 1 m in height) and isolated trees are usually very important in providing warmth, shelter, cover, foodplants, perches, territorial markers and sources of prey for typical heathland invertebrates and vertebrates. But overall cover of scrub and trees across this habitat feature should be maintained or restored to a fairly sparse level, with a structurally complex edge and with characteristic heathland vegetation as ground cover.	See references in Extent of feature within site attribute 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)
			If scrub is locally important for any associated species with their own specific conservation objectives, then a higher level of cover will be acceptable. The area of scrub/tree cover should be stable or not increasing as a whole	
Structure and function (including its typical species)	Vegetation structure: dwarf shrub age structure	Maintain a diverse age structure amongst the ericaceous shrubs typically found on the site	Each phase of growth associated with the characteristic heathers which dominate this feature also represents different microclimatic conditions and microhabitats which may provide shelter or food to other organisms. Therefore, it is important to maintain a mosaic of heather in different phases of growth. Typically this age structure will consist of between 10-40% cover of (pseudo) pioneer heathers; 20-80% cover of building/mature heathers; <30% cover of degenerate heathers and less than <10% cover of dead heathers	See references in Extent of feature within site attribute This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Structure and function (including its typical species)	Vegetation: undesirable species	Maintain 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.	See references in Extent of feature within site attribute This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
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 Constant and preferential plant species of H8, H9, H12, and H21 heathland NVC communities that form the H4030 feature within this SAC. Assemblages of breeding birds - Upland moorland and grassland	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; • 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.	See references in Extent of feature within site attribute.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		without water bodies.	<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.</p> <p>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>	
Structure and function (including its typical species)	Functional connectivity with wider landscape	Restore 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. 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.</p> <p>A number of species require both the open moorland and the surrounding habitats including wet flushes, purple moor grass/rush pasture and unimproved grassland meadows including for instance: Curlew <i>Numenius arquata</i>, Bilberry bumblebee <i>Bombus monticola</i>, Small pearl bordered fritillary <i>Boloria selene</i>.</p> <p>In addition the varied bat species present in and around the Stiperstones will be using all semi-natural habitats for foraging as well as mines for roosting. Including: Lesser horseshoe bat, <i>Rhinolophus hipposideros</i>, Brown long-eared bat, <i>Plecotus auritus</i>, Natterer's bat, <i>Myotis nattereri</i>, Daubenton's bat, <i>Myotis daubentonii</i>, Soprano pipistrelle, <i>Pipistrellus pygmaeus</i>, Noctule, <i>Nyctalus noctula</i>, Whiskered bat, <i>Myotis mystacinus</i>,</p>	Species records at https://nbnatlas.org/

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Common pipistrelle , <i>Pipistrellus pipistrellus</i> Barbastelle, <i>Barbastella barbastellus</i>, Brandt's Myotis, <i>Myotis brandtii</i></p> <p>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>	
Structure and function (including its typical species)	Adaptation and resilience	Restore the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site	<p>This recognises the increasing likelihood of natural habitat features 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>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>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being low, taking into account the sensitivity, fragmentation, topography and management of its habitats.</p> <p>This means that this site is considered to be vulnerable overall but are a lower priority for further assessment and action. Individual species may be more or less vulnerable than their supporting habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.</p> <p>The Stiperstones is close to the climatic south/easterly limit. Distinctive species of the communities require permanently</p>	<p>Natural England, (2015) Climate Change Theme Plan and supporting NBCCV Assessments for SACs and SPAs</p> <p>English Nature. (2002).</p> <p>Stiperstones & Corndon Hill Country Landscape Partnership Scheme. (2018)</p> <p>Plant Disease Factsheet: <i>Phytophthora ramorum</i> and <i>Phytophthora kernoviae</i> diseases on bilberry (<i>Vaccinium myrtillus</i>) A threat to our woodlands, heathlands and historic gardens</p> <p>https://planthealthportal.defra.gov.uk/assets/factsheets/phytophthoraBilberry.pdf</p> <p><i>Phytophthora</i> and UK biodiversity http://jncc.defra.gov.uk/pdf/Phytophthora%20Leaflet.pdf</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>humid conditions, which would be under threat in warmer, drier summers.</p> <p>The potential impacts of <i>Phytophthora</i> spp. on bilberry may also need to be considered. This is an issue on nearby dry heath habitats, with warmer and wetter winters likely to promote conditions suitable for it spread. The loss of bilberry plants could have repercussions for many other species, some of which are of particular conservation interest themselves. 116 insect species feed on bilberry (9 exclusively)</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.	Natural England. (2010)
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> <p>Management that may be appropriate for this feature include maintaining low nutrient levels to maintain high numbers of species through the management activities of grazing, burning, mowing, and scrub/tree cutting. Management of succession is a critical aspect of management for this habitat, by a combination of active processes and grazing/cutting. A range of invertebrates and plants require bare ground where it is not too frequently disturbed by vehicles or feet.</p>	<p>Eades, P. (2013).</p> <p>Shropshire Hills AONB. (2017)</p>
Supporting	Air quality	Restore, the concentrations and	This habitat type is considered sensitive to changes in air	More information about site-

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
processes (on which the feature relies)		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).	<p>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.</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> <p>The Critical Loads and Levels are at exceedance and therefore a threat to the dry heath feature, especially lichens and bryophytes.</p>	<p>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).</p> <p>Air Quality data can be found on the UKEAP data selector website.</p>
Supporting processes (on which the feature relies)	Hydrology	<p>At a site, unit and/or catchment level (as necessary, restore natural hydrological processes to provide the conditions necessary to sustain the feature within the site.</p> <p>The mires associated with the dry heath on this site are fed by groundwater discharge, There is</p>	<p>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.</p>	<p>Eades, P. (2013). Pendleton & Eades (2016) Shropshire Hills AONB. (2017).</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p>a significant amount of drainage of the mires on the Stiperstones, and a programme is underway to restore natural mire hydrology across and beyond the site.</p> <p>The site is mapped as Priority Headwater habitat by Natural England & Environment Agency.</p>	<p>Restoration of natural hydrological function e.g. by blocking and in-filling ditches both on site and in surrounding land is important for vegetation community transitions, functional connectivity with wider landscape, adaptation and resilience and soils, substrate and nutrient cycling</p>	
<p>Version Control Advice last updated: 7 March 2019: Explanatory text for Adaptation & Resilience attribute updated to highlight the potential impacts of <i>Phytophthora</i> spp. on bilberry</p>				
<p>Variations from national feature-framework of integrity-guidance: Water quality attribute has been removed as the H4030 feature on the site are primarily rainwater fed and are at the head of the catchment. This site does not currently have water quality issues (other than any linked impact from air quality issues).</p>				

Table 2: Supplementary Advice for Qualifying Features: H91A0. Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles; Western acidic oak woodland

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 at 19.27ha (SAC form figure)	<p>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.</p> <p>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.</p> <p>For this feature tree roots (particularly of veteran trees) can extend a considerable distance beyond the boundary of the site - they can be impacted by soil compaction (such as caused by vehicles or construction works); agricultural operations or other soil disturbance (like trenches); and agro chemicals or other chemicals which get into the soil. 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. 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.</p> <p>The SAC woodland feature is found at Resting Hill near Snailbeach. This is more-or-less pure oak, partly coppice</p>	<p>Eades, P. (2013).</p> <p>Kirby, K. (2003). <i>Resting Hill</i>.</p> <p>Latham, M. (2015).</p> <p>Natural England. (2010).</p> <p>Newton, M. (1992)</p> <p>Newton, M. (2009)</p> <p>Thorne, K. (2002)</p> <p>Whild, S., & Lockton, A. (2009).</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>origin, partly maidens, probably cut over in last 70 years, though there are a few larger open grown trees at the top edge. There is the occasional birch <i>Betula</i> spp., holly <i>Ilex aquifolium</i> and rowan <i>Sorbus aucuparia</i> with a variable ground flora with bramble <i>Rubus fruticosus</i>, bracken <i>Pteridium aquilinum</i>, creeping soft grass <i>Holcus mollis</i> all locally common. Elsewhere there is wavy hair grass <i>Deschampsia flexuosa</i> and scattered leggy heather <i>Calluna vulgaris</i> bushes. There is also a little hard fern <i>Blechnum spicant</i> and bilberry <i>Vaccinium myrtillus</i>. The moss carpets, typical of upland oakwoods further west are relatively species-poor with patches of forkmoss <i>Dicranum</i> spp and bank haircap moss <i>Polytrichum formosum</i>. Rocky outcrops have a thin cover of lichens, some of which may be of at least country interest.</p> <p>A good proportion of the upland oak woodland has been returned to, and is managed as oak coppice with standards, which is in line with its history. Although both The Hollies, and Brook Vessons are renowned for their veteran trees populations (reflected as a SSSI interest feature), neither of these fit the SAC interest feature.</p> <p>The Favourable Condition Table for the SSSI as a whole gives a figure of 65ha for woodland. However at least a proportion of this is secondary woodland, derived from either former heath or enclosed land and would not contribute to the SAC feature.</p>	
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	<p>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.</p> <p>Smaller fragments of habitat can typically support smaller and</p>	See references for Extent of feature within the site attribute.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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.</p> <p>The SAC woodland feature is found at Resting Hill near Snailbeach. This is more-or-less pure oak, partly coppice origin, partly maidens, probably cut over in last 70 years, though there are a few larger open grown trees at the top edge.</p> <p>A good proportion of the upland oak woodland has been returned to, and is managed as oak coppice with standards, which is in line with its history. Although both The Hollies, and Brook Vessons are renowned for their veteran trees populations (reflected as a SSSI interest feature), neither of these fit the SAC interest feature. Similarly there are other areas of secondary woodland around the edge of the hill which are not considered as SAC feature.</p>	
Structure and function (including its typical species)	Vegetation community composition	<p>Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification types:</p> <p>W10 <i>Quercus robur</i>-<i>Pteridium aquilinum</i>-<i>Rubus fruticosus</i> woodland</p> <p>W16 <i>Quercus spp.</i>-<i>Betula spp.</i>-<i>Deschampsia flexuosa</i> woodland</p>	<p>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).</p> <p>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).</p> <p>Tree species composition may also be affected by ash dieback</p>	<p>See references for Extent of feature within the site attribute.</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<i>(Hymenoscyphus fraxineus)</i> , although ash is not a major component of the woodland here.	
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	<p>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, litter fall, soil moisture, nutrient turnover and shading; this in turn influences the 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. In general, the woodland canopy of this feature should provide a core of woodland interior conditions with some open and edge habitat as well.</p>	<p>See references for Extent of feature within the site attribute.</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
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	<p>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.</p> <p>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 wind-throw/fire/tree falling over/snow damage.</p> <p>A good proportion of the upland oak woodland has been returned to, and is managed as oak coppice with standards, which is in line with its history. This provides the necessary open space/age distribution etc.</p>	<p>See references for Extent of feature within the site attribute.</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>
Structure and function (including its typical species)	Vegetation structure - old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 20% of the feature at any one time) and the assemblages of veteran and ancient trees (typically >10 trees per hectare).	<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>Although both The Hollies, and Brook Vessons are renowned for their veteran trees populations (reflected as a SSSI interest feature), neither of these fit the SAC interest feature. The primary woodland is at Resting Hill near Snailbeach. Part is maintained as oak coppice with standards while some areas remain as singled coppice and tend to be uniform age. A small</p>	<p>See references for Extent of feature within the site attribute.</p> <p>Shropshire Wildlife Trust. (n.d.).</p> <p>Whild, S., & Lockton, A. (2009).</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			area is grazed while most of it is ungrazed.	
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. Dead and actively decaying wood, either as part of a standing tree or as a fallen tree on the woodland floor, is an important component of woodland ecosystems, and supports a range of specialist invertebrates, fungi, lichens and bryophytes, and associated hole-nesting birds and roosting bats, all of which may be very typical of the feature.	See references for Extent of feature within the site attribute. 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 at least 3 age classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees.	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.	See references for Extent of feature within the site attribute. 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 understorey shrubs covering 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.	See references for Extent of feature within the site attribute. 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. Grasslands / arable fields managed with high doses of agro-	See references for Extent of feature within the site attribute. 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)
			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 (at least 2 species) of site-native trees (e.g sessile oak, birch, and holly) 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>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>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being low, taking into account the sensitivity, fragmentation, topography and management of its habitats.</p> <p>This means that this site is considered to be vulnerable overall but is a lower priority for further assessment and action. Individual species may be more or less vulnerable than their supporting habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.</p> <p>The Stiperstones is close to the climatic south/easterly limit. Distinctive species of the communities require permanently humid conditions, which would be under threat in warmer, drier summers.</p>	Natural England, 2015. Climate Change Theme Plan and supporting NBCCV Assessments for SACs and SPAs
Structure and function (including its typical species)	Browsing and grazing by herbivores	Maintain areas where browsing at a (low) level allows a well-developed understorey with no	Herbivores, especially deer, are an integral part of woodland ecosystems. They are important in influencing woodland regeneration, composition and structure and therefore in	See references for Extent of feature within the site attribute.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)		obvious browse line, & lush ground vegetation with some grazing sensitive species evident (bramble, ivy etc.), and tree seedlings and sapling common in gaps.	<p>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, bark stripping and a heavily grazed sward.</p> <p>Much of this site is managed as wood pasture with grazing by domestic herbivores. This has been an important aspect of how the site has developed over time, e.g. for associated species such as Hairy wood ant <i>Formica lugabris</i>.</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. Browsing and grazing levels must permit regeneration at least in intervals of 5 years every 20. The density of regeneration considered sufficient is less in parkland sites than in high forest. Regeneration from pollarding of veteran trees should be included where this is happening.	<p>See references for Extent of feature within the site attribute.</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>
Structure and function (including its typical species)	Tree and shrub species composition	Maintain a canopy and understorey of which 95% is composed of site native trees and shrubs	<p>Native trees and shrubs in general support a greater diversity of associated species than non-native species, especially amongst groups of invertebrates which depend directly on trees for food and shelter. There are many plants and animals which use or co-exist with non-native trees, but many rare and threatened woodland species are specialists adapted to one or a few native trees or shrub species (birches, willows and oaks, are examples of trees that host many specialist insect species).</p> <p>Native species include: <i>Quercus petraea</i>, <i>Fraxinus excelsior</i>,</p>	<p>See references for Extent of feature within the site attribute.</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<i>Sorbus aucuparia</i> <i>Betula pubescens</i> , <i>Ilex aquifolium</i> , <i>Corylus avellana</i> , <i>Sambucus nigra</i> , <i>Acer campestre</i> , <i>Lonicera periclymenum</i> , <i>Betula pendula</i> , <i>Crataegus monogyna</i> (Trees and shrubs list taken from NVC survey 2015)	
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	<p>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> <p>Constant and preferential plant species of W10 and W16 woodland NVC communities that form the H91A0 feature within this SAC</p> <p>Hibernating populations of bats – Mixed Species and Lesser horseshoe bat, <i>Rhinolophus hipposideros</i>.</p> <p>Population of Dormouse <i>Muscardinus avellanarius</i></p>	<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"> • 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.</p> <p>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>Foraging activities by Lesser Horseshoe Bats take place nearly exclusively within woodland areas, while open areas are avoided (IUCN & Taylor, 2016)</p>	<p>Kirby, K. (2003).</p> <p>Latham, M. (2015).</p> <p>Natural England. (2010).</p> <p>Radford, C. (2016).</p> <p>Whild, S., & Lockton, A. (2009).</p>
Structure and function (including its typical species)	Invasive, non-native and/or introduced species including: Muntjac deer <i>Muntiacus</i>	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.	<p>See references for Extent of feature within the site attribute.</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
	<i>reevesi</i> and Grey Squirrel <i>Sciurus carolinensis</i>		<p>Once established, the measures to control such species may also impact negatively on the features of interest (e.g use of broad spectrum pesticides). Such species can include Rhododendrons, snowberry, Japanese knotweed, giant hogweed and Himalayan balsam, for example. Similarly, this would include pheasants, rabbits and non-native invertebrate 'pest' species.</p> <p>Non-native species are not currently regarded as an issue on this site, as they are either absent or rare (e.g. Sycamore).</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.	Natural England. (2010).
Structure and function (including its typical species)	Root zones of ancient trees	Maintain the soil structure within and around the root zones of the mature and ancient tree cohort in an un-compacted condition	The management of land within and around forest habitats which are characterised by ancient trees can be crucial to their individual welfare and long-term continuity, and the landscape they are part of can be just as or even more important. The condition of the soil surrounding such trees will affect their roots, associated mycorrhizal fungi and growth. Plants have difficulty in compacted soil because the mineral grains are pressed together, leaving little space for air and water which are essential for root growth. Unless carefully managed, activities such as construction, forestry management and trampling by grazing livestock and human feet during recreational activity may all contribute to excessive soil compaction around ancient trees.	
Supporting processes (on which the feature relies)	Air quality	Restore, 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	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)
		<p>Pollution Information System (www.apis.ac.uk).</p>	<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> <p>The Critical Loads and Levels are at exceedance and therefore a threat to the Acidophilous <i>Quercus</i>-dominated woodland, especially lichens and bryophytes.</p>	<p>(www.apis.ac.uk).</p> <p>Air Quality data can be found on the UKEAP data selector website.</p> <p>(Ling, 2009)</p>
Supporting processes (on which the feature relies)	Hydrology	<p>At a site, unit and/or catchment level restore natural hydrological processes to provide the conditions necessary to sustain the feature within the site.</p> <p>The site is mapped as Priority Headwater habitat by Natural England & Environment Agency.</p> <p>There are springs, seepages etc in the woods although these are predominantly in the wet woods on the eastern flanks.</p>	<p>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.</p> <p>This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts. This is included as disruption/damage to hydrological processes could be caused by activities at some distance from the site boundary. E.g. through extraction of ground or surface waters; diverting or damming river channels; pollution of water source; channel alignment</p>	<p>See references for Extent of feature within the site attribute.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>that disrupts natural geomorphological processes; tunnelling etc.</p> <p>Restoration of natural hydrological function e.g. by blocking ditches both on site and in surrounding land is important for vegetation community transitions, functional connectivity with wider landscape, adaptation and resilience and soils, substrate and nutrient cycling.</p>	
Version Control: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

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