



European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features

**Exmoor Heaths Special Area of Conservation (SAC)
Site Code: UK0030040**



Exmoor © Natural England/ Peter Wakeley

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About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Exmoor Heaths SAC. This advice should therefore be read together with the SAC Conservation Objectives available [here](#).

This SAC adjoins the Exmoor and Quantocks Oakwoods SAC for significant parts of its boundary on Exmoor and includes similar qualifying features. You should also refer to the separate European Site Conservation Objectives (and Supplementary Advice where available) provided for this site [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. Any proposals or operations which may affect the site or its qualifying features should be designed so they do not adversely affect any of the attributes listed in the objectives and supplementary advice.

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

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	Exmoor Heaths Special Area of Conservation (SAC)
Location	Devon & Somerset
Site maps	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	10670.3 ha
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)	Parts of: North Exmoor, South Exmoor, Exmoor Coastal Heaths, and West Exmoor Coast & Woods
Relationship with other European or International Site designations	This SAC adjoins the Exmoor and Quantocks Oakwoods SAC for significant parts of its boundary on Exmoor and includes similar qualifying features (see separate European Site Conservation Objectives provided for this site here).
Further information	Natura 2000 Standard Data Form for Exmoor Heaths

Site background and geography

Exmoor Heaths SAC covers an area of just over 10,000 ha located in Exmoor National Park, part of the Exmoor National Character Area (NCA). The underlying Devonian sandstones and slates of the area underpin plateaux incised by fast flowing streams and rivers such as the Exe and Lyn, to form whale-back ridges and steep combes. In the north and east these support heather dominated moorland, rather than blanket bog and grass moorland on the peats formed on the flatter ground to the west.

The central spine of the site runs westwards from Dunkery, with Exmoor's highest point at 513m, across to Challacombe. Three blocks of heathland occur along the coast of the Bristol Channel terminating in spectacular cliffs, including England's highest at Great Hangman. Inland, a further five southern outliers occur including for example Withypool Common and Winsford Hill. The often deep, steep sided valleys below the moorland support examples of western oakwood, many of which are included in the adjacent Exmoor & Quantocks Oakwoods SAC.

Bronze-age clearance of the wooded landscape of Exmoor, which developed after the last ice-age, coupled with heavy rainfall and leaching, led to the formation of peat and blanket bog on the highest and flattest ground of the plateau. In turn and on shallower soils, this gave rise to heathland used for common grazing. Evidence for extensive early occupation of the area survives as scatterings of Neolithic remains and standing stones, stone rows, settings and circles, and barrows of the bronze-age. The 'wildness' and remoteness of the upland landscape inspired the likes of R D Blackmore and Coleridge

and continues to inspire visitors and residents alike. This is one of the country's most important cultural landscapes.

The ecological character of the site is, to a large extent, dependent upon long-established traditional farming methods. Grazing levels have fluctuated but are now generally sustainable. One of the key nature conservation objectives is to improve dry heath by establishing adequate grazing levels and minimise the need for frequent burning. In some areas dry heath is being invaded by bracken and scrub, affecting dwarf-shrub cover. Rhododendron invasion is a localised problem. On wetter sites, drainage and burning have led to degraded blanket mires and wet heath with purple moor-grass *Molinia* dominance.

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:

- **H7230 Alkaline fens**

This vegetation is characteristic of sites where there is peat formation with a high water table and a calcareous base-rich water supply.

The core vegetation is short sedge mire (mire with low-growing sedge vegetation) and examples on Exmoor most resemble the NVC type M10 *Carex dioica* – *Pinguicula vulgaris*, but several typical northern species are missing especially *Carex dioica*, *Pinguicula vulgaris* and *Selaginella selaginoides*. Here they can be dominated by the small sedge *Carex panicea* and the brown mosses *Campylium stellatum* and *Drepanocladus revolvens*. They form very small patches often in close association with the more widespread short sedge acidic fen of Exmoor, M6 *Carex echinata* – *Sphagnum recurvum/auriculatum* mire or flushed examples of M25 *Molinia caerulea* – *Potentilla erecta* meadow. Identical flushes are found in heathland in Dorset and Hampshire and these appear to be a southern form of M10. These flushes are very rare in southern and south-west England.

- **H7130 Blanket bogs***

These are extensive peatlands which have formed in areas where there is a climate of high rainfall and a low level of evapotranspiration, allowing peat to develop not only in wet hollows but over large expanses of undulating ground. The 'blanketing' of the ground with variable depths of peat gives the habitat its name.

Blanket bogs show a complex pattern of variation related to climatic factors, particularly illustrated by the variety of patterning of the bog surface in different parts of the UK. Such climatic factors also influence the floristic composition of bog vegetation.

'Active' blanket bog supports a significant area of vegetation that is normally peat-forming. Typical species include the important peat-forming species, such as bog-mosses *Sphagnum* spp. and cotton-grasses *Eriophorum* spp., or purple moor-grass *Molinia caerulea* in certain circumstances, together with heather *Calluna vulgaris* and other ericaceous species.

Exmoor is near the southernmost limit of blanket bog in Europe and has a limited extent of blanket bog representative of south-west England. The peats are generally thinner here, with blanket bog vegetation rich in *Sphagnum* found down to 0.4m depth of peat (and shallower occasionally). The main vegetation community is M17 *Trichophorum germanicum* (*Scirpus cespitosus*) – *Eriophorum vaginatum* blanket mire with a limited development of M2 *Sphagnum cuspidatum/recurvum* or M3 *Eriophorum angustifolium* bog pool communities. M15 *Trichophorum germanicum* – *Erica tetralix* wet heath may also occur and in transition to M17, as does

intermediates with M25 *Molinia caerulea* – *Potentilla erecta* mire. Larger areas of M25 can be dominated by purple moor-grass *Molinia caerulea* associated with 19th Century drainage ditch systems and regular historic burning. Many of these areas are being re-wetted. There are also widespread peat-cuttings, dug by hand in the 19th Century, but generally these have re-vegetated. Nevertheless, good areas are frequently encountered that are very wet, support frequent and widespread *Sphagnum* mosses, and sometimes display small-scale surface patterning. Cranberry *Vaccinium oxycoccus* occurs in the best mires in hollows and crowberry *Empetrum nigrum* can be common but northerly species are lacking, as would be expected.

Only small areas of blanket bog were included in the SAC boundary because it was originally designated for H4030 European dry heaths.

- **H4030 European dry heaths**

This habitat has a wide European distribution, but it is only extensive in the western oceanic fringes of Europe, including the UK. Dry heaths occur throughout the UK. They are particularly abundant in the uplands, where they may form extensive stands, which dominate the landscape. They are more localised in lowland areas, especially in south and central England, where they have declined in extent due to afforestation, agricultural improvement and other land uses.

European dry heaths typically occur on freely-draining, acidic to circumneutral soils with generally low nutrient content. Ericaceous dwarf-shrubs dominate the vegetation. The most common is heather *Calluna vulgaris*, which often occurs in combination with gorse *Ulex* spp., bilberry *Vaccinium* spp. or bell heather *Erica cinerea*, though other dwarf-shrubs are important locally. Nearly all dry heath is semi-natural, being derived from woodland through a long history of grazing and burning. Most dry heaths are managed as extensive grazing for livestock or, in upland areas, as grouse moors.

Exmoor is representative of upland heath in south-west England. The site is notable because it contains extensive areas of H4 *Ulex gallii* – *Agrostis curtisii* heath, a type most often found in the lowlands, and H12 *Calluna vulgaris* – *Vaccinium myrtillus* heath, a predominantly upland type, together with areas of H8 *Calluna vulgaris* – *Ulex gallii* heath. In wetter situations or on shallow peat there can be a high frequency of purple moor-grass *Molinia caerulea* and cross-leaved heath *Erica tetralix*, which results in frequent transitions to wet heaths and some surveys have mapped this humid heath as M15d rather than H12. The associated valley mires, generally small because of the narrow, steeply sloping valleys (locally referred to as ‘combes’), support a range of indicators including the oceanic ivy-leaved bellflower *Wahlenbergia hederacea*.

The Exmoor heaths are also important as a stronghold for the heath fritillary butterfly *Mellicta athalia*, associated with sheltered slopes in the transition to woodland. The site has held a small breeding population of merlin *Falco columbarius* that was the most southerly in the western Palearctic, but recent records suggest it is declining.

- **H4010 Northern Atlantic wet heaths with *Erica tetralix***

Wet heath usually occurs on acidic, nutrient-poor substrates, such as shallow peats or sandy soils with impeded drainage. The vegetation is typically dominated by mixtures of cross-leaved heath *Erica tetralix*, heather *Calluna vulgaris*, grasses, sedges and *Sphagnum* bog-mosses.

Exmoor is representative of upland wet heath habitat in south-west England. M15 *Trichophorum germanicum* – *Erica tetralix* wet heath predominates on gently-sloping and level ground. It is extremely variable in nature and has in places been modified by management, particularly burning. Typically, heather *Calluna vulgaris* dominates, with scattered plants of purple moor-grass *Molinia caerulea*, cross-leaved heath *Erica tetralix*, bilberry *Vaccinium myrtillus*, pleurocarpous mosses and some *Sphagnum*, and deergrass *Trichophorum germanicum*.

In other areas *Molinia* and *Calluna* are more-or-less co-dominant, with the former forming tussocks. There are transitions to H12 *Calluna vulgaris* – *Vaccinium myrtillus* heath on well-drained, steeper slopes and to M17 *Trichophorum germanicum* – *Eriophorum vaginatum* blanket mire on deeper peat, where the northern species crowberry *Empetrum nigrum* occurs

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

In the UK, this Annex I habitat type comprises a range of woodland types dominated by mixtures of oak (*Quercus robur* and/or *Q. petraea*) and birch (*Betula pendula* and/or *B. pubescens*). It is characteristic of base-poor soils in areas of at least moderately high rainfall in northern and western parts of the UK

This site supports small areas of this more extensive habitat often at the edges of moorland such as Badgworthy Wood or the fringes of Dunkery. They are rich in bryophytes, ferns and epiphytic lichens. The most widespread communities occurring are W17 sessile oak - downy birch - *Dicranum majus* woodland on poorer, more lithomorphous soils on steeper slopes and W11 sessile oak - downy birch - wood sorrel woodland on deeper soils developed on more moderate slopes towards the upper edge of the woods.

The woods generally have rich Atlantic bryophyte/fern communities, including species that are generally scarce on Exmoor such as the liverwort *Bazzania trilobata*, hay-scented buckler-fern *Dryopteris aemula* and Tunbridge filmy-fern *Hymenophyllum tunbrigense*. The lichens are especially important, especially epiphytes including on old trees, often associated with old pollards or open-grown maiden trees, since parts are former wood-pasture rather than the oak coppice that is more common with this type. The combination of high humidity, and air quality, an open canopy which allows good illumination of epiphytes and the presence of relatively mature ash and oak standards favours the development of very diverse communities. Rare and endemic whitebeams (*Sorbus* spp.) can be present in open rocky areas near the coast; Neck Wood at Trentishoe is a prime example with *Sorbus subcuneata*, *S. devoniensis*, *S. margaretae* and *S. vexans* all present.

- **H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts**

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

This site represents three stretches of the 54 km long Exmoor coast formed of moderately hard sedimentary coastal cliff. Most is north facing and not fully exposed to Atlantic storms. The cliffs are high, including the highest cliff in England, and accessible vegetation is not strongly maritime in character. From the flat to gently sloping coastal moorland summit areas to landward, most of the north-facing cliff land has a bevelled 'hog's-back' profile, with a very steep scarp slope facing the sea.

Typically, there can be lichen-rich coastal dry heath on exposed areas with more typical coastal H4 *Ulex gallii* – *Agrostis curtisii* heath in sheltered areas, with W23 *Ulex europaeus* - *Rubus fruticosus* underscrub lower down and bracken U20 *Pteridium aquilinum*-*G. saxatile* grassland and W25 *P. aquilinum* – *R. fruticosus* underscrub present or extensive in places. There are extensive scree slopes. There are only a few places where maritime communities are present, for instance at Hurlstone Point with lichen-rich open maritime grassland MC8 *F. rubra* – *Armeria maritima* maritime grassland and MC12 *Festuca rubra* – *Hyacinthoides non-scripta* maritime bluebell community. Elsewhere maritime grasslands are replaced by a mixture of acid grasslands U4 *Festuca ovina* – *Agrostis capillaris* - *Galium saxatile* grassland (U4e), U1 *F. ovina* – *A. capillaris* - *Rumex acetosella* grassland (U1b, c, d, e & f subcommunities), U3 *Agrostis curtisii* grassland and with patches of H18 *Vaccinium myrtillus* – *Deschampsia flexuosa* (H18a) on north-east facing slopes. In places, low level upland heaths H12 *C. vulgaris* – *Vaccinium myrtillus* on a north facing coastal slope can be quite striking.

* denotes a priority natural habitat or species (see the SAC Conservation Objectives for full explanation of this term)

References

RODWELL, J.S. (ed.) 1991. *British Plant Communities. Volume 1 - Woodlands and scrub*. Cambridge University Press.

RODWELL, J.S. (ed.) 1991. *British Plant Communities. Volume 2 - Mires and heath*. Cambridge University Press.

RODWELL, J. S. (ed.) 1992. *British Plant Communities. Volume 3. Grassland and montane communities*. Cambridge University Press.

RODWELL, J.S. (ed.) 2000. *British Plant Communities: Volume 5 - Maritime communities and vegetation of open habitats*. Cambridge University Press.

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

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution	Extent of hard or soft cliff capable of supporting sea cliff vegetation	Maintain the total extent of the cliff system which is capable of supporting H1230 sea cliff vegetation of at least 21.06 km	<p>There should be no measurable net reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored.</p> <p>The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements given may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information. The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations. Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis.</p> <p>The whole system acts to provide the range and variation of vegetation types and mosaics with bare ground. Extent may be measured in different ways but there are issues with measuring area of vertical cliffs. Reduction in extent can include smothering cliff slope, cliff foot or cliff top surfaces by artificial or dumped materials.</p>	NATURAL ENGLAND. 2014. Length of SAC measured from Webmap on 8.2.2016 (Exmoor Coastal Heaths SSSI 13.11km + West Exmoor Coast & Woods SSSI 7.95km).
Extent and distribution	Spatial distribution of the feature within the site	Maintain the distribution and continuity of the H1230 habitat and any associated transitions which reflects the natural functioning of the cliff system	<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.</p> <p>This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not</p>	BOYCE, D.C. (2010) Condition Assessment – Exmoor Maritime Cliff Communities in the West Exmoor Coast and Woods and Exmoor Coastal Heaths SSSIs. Report to NE.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			be suitable for some of the typical and more specialist species associated with the Annex I habitat feature. Transitions include cliff top and cliff foot transitions to terrestrial or marine habitats.	
Extent and distribution	Future extent of habitat within the site and ability to respond to seasonal changes	Maintain active processes such that the system can adjust to longer-term natural change, including landward recession, and that fluctuations in the extent of vegetated areas to bare rock occur over time and space within the site.	<p>This recognises the need to allow for naturally-occurring fluctuations in the extent and the distribution of this habitat feature, often during particular seasons and usually as a result of dynamic natural coastal processes.</p> <p>A full description of coastal processes operating in this area can be found in the current Shoreline Management Plan.</p>	NORTH DEVON AND SOMERSET COASTAL ADVISORY GROUP. 2010. North Devon & Somerset Shoreline Management Plan Review. Final (October 2010)) accessible at http://www.ndasca.org/finalsmp/docs/html/frameset.htm
Structure and function (including its typical species)	Geo-morphological naturalness	Maintain the geomorphological naturalness of the sea cliff system from cliff top to foreshore	<p>The physical landforms associated with this habitat feature, and the processes that shape them, will be a primary influence on sea-cliff habitat.</p> <p>A key criterion for selecting SACs for this habitat feature was that they had no or minimal artificial modification and so demonstrates good geomorphological naturalness. Having a well-developed sea-cliff structure, predominantly shaped by natural geomorphological processes, will ensure the full range of natural variation can occur.</p>	
	Presence of mosaic of microhabitats	Maintain the diversity and range of microhabitats and bare areas resulting from active coastal processes/landslips	<p>Each site will have a different configuration of geology and hydrology and maritime exposure, which will also change over time and space.</p> <p>The key aim is to maintain the full, naturally expected range of these in as natural a state as possible. The small-scale habitats created by natural coastal processes will be essential to characteristic sea cliff vegetation and its associated species.</p>	BOYCE 2010 as above
	Vegetation community composition	Ensure the component vegetation communities of the H1230 feature are referable to and characterised by the	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	BOYCE 2010 as above

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
	<p>following National Vegetation Classification type (s):</p> <p>Maritime grassland MC8 <i>Festuca rubra</i>-<i>Armeria maritima</i> grassland MC12 <i>Festuca rubra</i>-<i>Hyacinthoides non-scripta</i> maritime bluebell community</p> <p>Heath U3 <i>Agrostis curtisii</i> grassland H4 <i>Ulex gallii</i> – <i>A. curtisii</i> heath H8 <i>Calluna vulgaris</i>-<i>U. gallii</i> heath H10 <i>C. vulgaris</i>- <i>Erica cinerea</i> heath H12 <i>C. vulgaris</i>-<i>Vaccinium myrtillus</i> heath H18 <i>V. myrtillus</i> – <i>Deschampsia flexuosa</i> heath</p> <p>Grassland and Bracken U1 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Rumex acetosella</i> grassland (U1b, c, d, e & f subcommunities) U4 <i>F. ovina</i> – <i>A. capillaris</i> - <i>Galium saxatile</i> grassland U20 <i>Pteridium aquilinum</i>-<i>G. saxatile</i> grassland</p> <p>Scrub & Woodland W10 <i>Quercus robur</i>-<i>Pteridium aquilinum</i>-<i>Rubus fruticosus</i> woodland. W11 <i>Q. petraea</i>-<i>Betula pubescens</i>-<i>Oxalis acetosella</i> woodland</p>	<p>categorised by the National Vegetation Classification (NVC). Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations). The presence, composition, location and extent of maritime scrub, heath and/or grassland, plus mosaics of the three, on cliff slopes or cliff tops will be determined by the interaction of natural geomorphological processes with exposure and soil characteristics and management where relevant.</p> <p>No cliff surveys have been carried out. Due to the lack of any extensive NVC survey the list is mainly restricted to terrestrial vegetation types. The high cliffs also limit exposure to salt spray so that only a few truly maritime communities have been identified from the accessible parts.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p>W17 <i>Q. petraea</i> – <i>B. pubescens</i> - <i>Dicranum majus</i> woodland</p> <p>W16 <i>Quercus</i> spp.-<i>Betula</i> spp.-<i>Deschampsia flexuosa</i> woodland</p> <p>W23 <i>Ulex europaeus</i> - <i>Rubus fruticosus</i> underscrub</p> <p>W21 <i>Crataegus monogyna</i>-<i>Hedera helix</i> scrub</p> <p>W22 <i>Prunus spinosa</i>-<i>Rubus fruticosus</i> scrub</p>		
Structure and function (including its typical species)	Vegetation: undesirable species	<p>Maintain or restore 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:</p> <p><i>Rhododendron (Rhododendron ponticum</i> inc. <i>R. ponticum</i> x <i>R. maximum</i>)</p> <p>Invasive knotweeds (<i>Fallopia sachalinensis</i>, <i>F. japonica</i> x <i>F. sachalinensis</i>, <i>F. japonica</i>, <i>Persicaria wallichii</i>)</p> <p>Prickly Heath <i>Gaultheria mucronata</i></p> <p>Himalayan balsam <i>Impatiens grandiflora</i></p>	<p>Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted succession to a different and less desirable state.</p> <p>Often these species 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.</p> <p>There are a range of non-native plants affecting coastal cliffs, and due to difficulties of access, these often pose problems with management. The key objective is to prevent any introductions or planting. This includes the dumping of spoil or organic waste on cliff tops or slopes within or beyond the site boundary which may contain plant seeds or propagules or enrich the site.</p> <p>In a few locations, <i>Rhododendron</i> is a problem on cliffs or steep coastal slopes (west of Girt Down, and of Heddon's Mouth, North Hill) and a 'restore' target has therefore been included</p>	<p>BOYCE 2010 as above</p> <p>EXMOOR NATIONAL PARK AUTHORITY, 2016. Knotweed Control Project. Accessible at http://www.exmoor-nationalpark.gov.uk/living-and-working/info-for-farmers-and-land-managers/knotweed-control-project.</p>
	Key structural, influential and/or distinctive species	<p>Maintain the abundance of the species listed below to enable each of them to be a viable component of the H1230 habitat:</p> <p>Constant and preferential plant species of the component vegetation types at this SAC (see</p>	<p>Some plant or animal species (or related groups of such species) make a particularly important contribution to the 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 habitat's structure or help to define an Annex I habitat on a site (see also the attribute for 'vegetation community composition'). – Influential species which are likely to have a key role affecting the 	<p>For lichens and <i>Sorbus</i> see the sources for H91A0 woodland below.</p> <p>For seabirds see the Seabird Monitoring</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p>above)</p> <p>Woodland: Assemblage of epiphytic lichens Endemic and rare whitebeam <i>Sorbus</i> species including <i>Sorbus subcuneata</i>, <i>S. margaretae</i> and <i>S. vexans</i></p> <p>Shaded waterfalls in woodland/cliff: Killarney fern <i>Trichomanes speciosum</i> gametophyte</p> <p>Cliff/scree/landslips: Wood vetch <i>Vicia sylvatica</i> and Scarce blackneck <i>Lygephila cracca</i> moth English stonecrop <i>Sedum fosteranum</i> <i>Sorbus</i> spp. - see above</p> <p>Cliffs: Assemblage of breeding seabirds including Guillemot <i>Uria aalge</i> and Razorbill <i>Alca torda</i> but also Fulmar <i>Fulmarus glacialis</i> and Herring Gull <i>Larus argentatus</i> (previously Kittiwake <i>Rissa tridactyla</i> but not present in last 7-10 years)</p>	<p>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).</p> <ul style="list-style-type: none"> – Site-distinctive species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular site. <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>For this feature, typical species may be associated with a variety of different sub-habitats such as rock crevice, splash zone and ledge vegetation; maritime therophyte (annual) vegetation; soft cliff pioneer vegetation; soft cliff flush or wetland vegetation and soft cliff grassland or heath communities on slopes and/or adjacent cliff tops .</p>	<p>Programme Online Database</p> <p>Other species records available from Somerset or Devon Local Records Centre or the NBN Gateway</p>
Structure and function (including its typical species)	Regeneration potential	Maintain the presence of semi-natural vegetation on the cliff-top (both within and beyond the site boundary as appropriate), and its connectivity with the lower cliff slopes.	<p>This is important to ensure that there is a continuous source and supply of seed-rich semi-natural vegetation material from the clifftops to feed the sea-cliff system below.</p> <p>As the top of the cliff slumps and recedes as a result of natural eroding processes, the vegetation dropping onto the lower slopes should provide suitable material for their re-colonisation with native plant species from adjacent semi-natural habitats above</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			The adjacent cliff top land is almost entirely semi-natural vegetation except in a few very narrow locations where a steep gut (ravine) meets semi-improved farmland as at Boseley Gut (North Cleave).	
Supporting processes (on which the feature relies)	Hydrology/ drainage	At a site level, maintain natural hydrological processes to provide the conditions necessary to sustain the H1230 feature within the site	<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>There is little information on the importance of features associated with streams or flushes on the sea cliffs (except for <i>Trichomanes speciosum</i> see above) but high humidity is likely to be important (see below).</p> <p>The vegetated sea cliffs interest feature exists downstream of all existing licensed abstractions and discharges. Consequently it is regarded as sensitive to abstraction and vulnerable to impacts from discharges.</p>	<p>ENVIRONMENT AGENCY (EA) SW REGION. 2005. Site characterisation of Exmoor Heaths cSAC and Exmoor and Quantock Oakwoods cSAC. Review of Consents. Site Characterisation Report 18 May 2005.</p> <p>ENVIRONMENT AGENCY. 2010. West Somerset Catchment Flood Management Plan. Summary at: https://www.gov.uk/government/publications/west-somerset-catchment-flood-management-plan</p>
Supporting processes (on which the feature relies)	Maritime exposure including salt spray effects	Maintain an appropriate degree of exposure to maritime effects, such as salt spray, both from regular inputs and storm events.	<p>Excessive exposure to salt spray can cause episodic die-back of sea cliff vegetation in some circumstances, although this may not be applicable to all sites.</p> <p>This attribute is applicable to vegetation at lower levels and can be monitored only at small areas of accessible grassland e.g. Heddon's Mouth Cleave and</p>	BOYCE 2010 as above

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
	<p>Water quality</p> <p>Where the feature is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the H1230 feature.</p>	<p>Hurlstone Point</p> <p>For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year.</p> <p>Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type. Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.</p> <p>Water quality in the area is generally good, with all watercourses flowing through the SAC achieving RE1 in 2000 and 2001.</p> <p>With reference to the EA's River Basin Management Plan 2 and the Catchment Data Explorer tool, the following water body classification and reasons for not achieving good in 2014 are provided:</p> <p>Heddon: Moderate – failing due to macrophytes and phytobenthos combined.</p>	<p>EA 2005 see above.</p> <p>ENVIRONMENT AGENCY, 2015. South West River Basin Management Plan, December 2015.</p> <p>ENVIRONMENT AGENCY, (2016) River Basin Management Plan Environment Agency Catchment Data Explorer.</p>
	<p>Air quality</p> <p>Maintain as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).</p>	<p>This habitat type is considered sensitive to changes in air quality.</p> <p>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 (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development.</p>	<p>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.</p> <p>EA 2005 see above.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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>There is currently no critical load value available for this habitat on APIS. However, sea cliff habitat is considered to be sensitive to aerial nitrogen deposition which has the potential to accelerate grass growth, with adverse effects on typical plants, and to affect sensitive moss species.</p>	
Supporting processes (on which the feature relies)	Cliff morphology, slope and elevation	Maintain the natural processes that determine cliff morphology, slope and elevation	<p>These physical components greatly influence the structure of this habitat type.</p> <p>Allowing natural dynamic processes to operate is important to providing optimal conditions which will allow the long-term conservation of this habitat feature. Interruption of these processes, through partial stabilisation or slowing of cliff erosion and recession rates, with artificial management of cliff slope vegetation, does not produce naturally-occurring conditions which could lead to undesirable changes in characteristic sea cliff vegetation.</p> <p>The SMP policy on this stretch of coast is no active intervention in the short, medium and long term.</p>	NORTH DEVON AND SOMERSET COASTAL ADVISORY GROUP. 2010. As above

Version Control

Advice last updated: not applicable

Variations from national feature-framework of integrity-guidance:

The following generic attribute for the H1230 feature are considered not relevant to this site: *Physical features supporting vegetation: crevices, ledges, isolated stacks.*

Table 2: Supplementary Advice for Qualifying Features: H4010. Northern Atlantic wet heaths with *Erica tetralix*; 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	Restore the total extent of upland heath (including the H4010 feature) to about 9385 ha.	<p>There should be no measurable net reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored.</p> <p>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. 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>The total area of wet heath communities cannot be calculated separately from dry heath accurately due to the scattered distribution of the communities, transitions between dry and wet heath, mapping of large areas of community mosaics (reflecting the complexity of the habitat distribution on the ground) and inadequate survey data. In a coarse scale mapping for the SAC Data Form in September 2000 the following areas were estimated and show the different balance of dry vs wet heath.</p>	<p>NATURAL ENGLAND. 2014. Areas of Upland Heath measured from Webmap BAP Priority Habitat Inventory on 11.2.16 excluding areas of woodland, blanket bog and known enclosed semi-improved grassland.</p> <p>ENGLISH NATURE (1992-1994) Phase 1 Habitat Maps. SSSI Scientific files, Natural England.</p> <p>NATIONAL TRUST (2007) West Exmoor, Devon. Nature Conservation Evaluation. SLR. [no NVC maps]</p> <p>JERRAM, R. (1999) Exmoor Heaths: Survey of National Vegetation Classification Communities. Unpublished Report for Natural England, Taunton</p> <p>SANDERSON, N. (2000) Holnicote Moorland Survey.</p>																						
			<table border="1"> <thead> <tr> <th rowspan="2">Hectares of habitat in component SSSI</th> <th colspan="2">West Exmoor</th> <th rowspan="2">West Exmoor Coast & Woods</th> <th rowspan="2">Exmoor Coastal Heaths</th> <th rowspan="2">Total</th> </tr> <tr> <th>North Exmoor</th> <th>South Exmoor</th> </tr> </thead> <tbody> <tr> <td>Dry heath</td> <td>2545</td> <td>1220</td> <td>50</td> <td>750</td> <td>4565</td> </tr> <tr> <td>Wet heath</td> <td>946</td> <td>885</td> <td>0</td> <td>3</td> <td>1834</td> </tr> <tr> <td>Bracken</td> <td>1556</td> <td>400</td> <td>30</td> <td>320</td> <td>2306</td> </tr> </tbody> </table>		Hectares of habitat in component SSSI	West Exmoor		West Exmoor Coast & Woods	Exmoor Coastal Heaths	Total	North Exmoor	South Exmoor	Dry heath	2545	1220	50	750	4565	Wet heath	946	885	0	3	1834	Bracken	1556
Hectares of habitat in component SSSI	West Exmoor		West Exmoor Coast & Woods	Exmoor Coastal Heaths		Total																				
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Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Scrub 60 50 17 70 197</p> <p style="text-align: right;">8902</p> <p>This should be taken as a minimum unless and until other more detailed survey information is available.</p> <p>Other habitats, important as part of the upland heath mosaic, not included in the above table include running water, valley mires, grassland and roads. Blanket bog, maritime cliff and slope and woodland are estimated separately (see individual SAC habitat tables).</p> <p>A 'restore' target has been set here to reflect that some areas of potential heath habitat will benefit from restoration by clearance of invasive species e.g. (eg. Land Combe), by time to develop suitable soils and vegetation (eg heathland reversion at Girt Down) or by agreement over future reversion (e.g. Oare House Allotment; Deer Park Plantation).</p>	<p>National Trust.</p> <p>JERRAM, R. (2001) Exmoor Heaths: National Vegetation Classification Survey 2001. Mill Hill & Squallcombe. Unpublished Report for Natural England, Taunton</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 H4010 and H4030 features, including where applicable their component vegetation types, across the site	<p>The 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.</p> <p>This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature.</p>	See above.
Structure and function (including its typical)	Vegetation community transitions	Maintain any areas of transition between the H4010 and H4030 heath features and communities which form other heathland-	Transitions between adjacent but different vegetation communities are usually related to naturally-occurring changes in 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	See above.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
species)		associated habitats, such as: dry and humid heaths (H4, H8, H12), blanket bogs (M17), mires (M6, M21, M23, M25), acid grasslands (U3, U4), scrub (W23), and woodland (W1, W17)	communities. Retaining such transitions can 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.	
	Vegetation community composition	Ensure the component vegetation communities of the features are referable to and characterised by the following National Vegetation Classification type(s): For H4010 wet heath; types M15 (+ H12/M15d, H8/M15d), M15/M17, M15/M25, M16. For H4030 dry heath; types H4 (and U3), H8, H10, H12 (and M15d), H18, H21.	This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations). Wet dwarf shrub heath in a mosaic with dry heath, blanket bog and valley mires. Atlantic influence (and especially in the W and SW of the site) gives greater cover of <i>Molinia</i> with a concomitant reduction in dwarf-shrub cover. Usually distinguished by <i>Sphagnum</i> species and a higher frequency of <i>Erica tetralix</i> but can grade into humid heath (M15d) or blanket bog (M17, M17/M15, M17/M25). Degraded versions are represented by M25 <i>Molinia caerulea-Potentilla erecta</i> mire. Dry heath is present either as typical H4, H8, H12 dry heath or as a south-western humid heath (with frequent purple moor-grass <i>Molinia caerulea</i> and cross-leaved heath <i>Erica tetralix</i>) sometimes classified as M15d. Also included are smaller areas of H10 <i>C. vulgaris – Erica cinerea</i> heath, H18 <i>Vaccinium myrtillus – Deschampsia flexuosa</i> heath, H21 <i>Calluna vulgaris – V. myrtillus – Sphagnum capillifolium</i> heath (on north slopes and possibly patches of U19 <i>Thelypteris limbosperma - Blechnum spicant</i> community) and U3 <i>A. curtisii</i> grassland (often after burning H4 heath).	See above.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Vegetation structure: cover of dwarf shrubs	<p>For H4010 wet heath; maintain an overall cover of dwarf shrub species which is typically between 10-75% with at least 50% of indicator species: <i>Carex</i> spp., <i>Drosera</i> spp., <i>Eriophorum angustifolium</i>, <i>Narthecium ossifragum</i>, Non-crustose lichens, <i>Pleurocarpous</i> mosses, <i>Sphagnum</i> spp., <i>Trichophorum cespitosum</i>, <i>Calluna vulgaris</i>, <i>Empetrum nigrum</i>, <i>Erica</i> spp., <i>Myrica gale</i>, <i>Vaccinium</i> spp., <i>Salix repens</i>, <i>Racomitrium lanuginosum</i></p> <p>For H4030 dry heath; maintain an overall cover of dwarf shrub species which is typically above 40% and with <i>U.gallii</i> at <50% of dwarf-shrub cover</p>	<p>Variations in the structure of the heathland vegetation (vegetation height, amount of canopy closure, and patch structure) are 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 vulgaris</i>, bell heather <i>Erica cinerea</i>, cross-leaved heath <i>Erica tetralix</i>, bilberry/ whortleberry <i>Vaccinium myrtillus</i> are the commonest and most characteristic dwarf-shrubs. <i>Calluna</i> is usually the most abundant. Crowberry <i>Empetrum nigrum</i>, usually more common in blanket bog here on Exmoor, is not strictly ericaceous but is often treated as an ericoid species.</p> <p>Western gorse <i>Ulex gallii</i> and bristle bent <i>Agrostis curtisii</i> are typical of western or coastal heath especially H4 and H8 stands but at high cover can prevent grazing and become over-dominant.</p>	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Vegetation structure: heather age structure	Maintain a diverse age structure amongst the ericaceous shrubs typically found on the site with no observable signs of burning into the moss, liverwort or lichen layer or in sensitive areas, or exposure of peat surface	<p>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.</p> <p>Therefore it is important to maintain a mosaic of heather in different phases of growth with at least 10% of the heather across the unit in the late mature growth phase. 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</p> <p>Sensitive areas may include: (a) Vegetation severely wind-clipped, mostly forming a mat less than 10 cm thick; (b) Areas where soils are thin and less than 5 cm deep; (c) Slopes greater than 1 in 3 (18°), and all the sides of gullies; (d) Ground with abundant, and/or an almost continuous carpet of Sphagnum, liverworts and/or lichens; (e) Areas with noticeably uneven structure, at a spatial scale of around 1 m² or less.</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)
			The unevenness (e.g. more commonly found in very old heather stands) will relate to distinct, often large, spreading dwarf-shrub bushes. The dwarf-shrub canopy will not be completely continuous, and some of its upper surface may be twice as high as other parts. Layering is likely to be present and may be common; (f) Pools, wet hollows, hags and erosion gullies, and within 5 – 10 metres of watercourses	
Structure and function (including its typical species)	Vegetation structure: tree cover	Maintain the open character of the H4010 and H4030 features, with a typically scattered and low cover of trees and scrub (<20% cover)	<p>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. Extensive stands of mature gorse may also be serious fire hazards.</p> <p>Scrub (mainly trees or tree saplings above 1 m in height) and isolated trees are usually important in providing warmth, shelter, cover, food-plants, 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. 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.</p>	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Vegetation composition: bracken cover	Maintain a low cover of dense bracken, typically at <10%	<p>The spread of bracken <i>Pteridium aquilinum</i> is a problem on many 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.</p> <p>Usually, active management of bracken is required to reduce or contain its cover across this habitat feature. But this fern has also some nature conservation value, for example on sites where fritillary butterflies occur and utilise bracken litter habitat, and retention of dense bracken at low cover is acceptable.</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)
	Key structural, influential and/or distinctive species	<p>Maintain the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitats:</p> <p>For H410 wet heath; Constant and preferential plant species of the M15/M16 (and M25) vegetation types at this SAC including <i>Erica tetralix</i> and <i>Sphagnum</i> species</p> <p>For H4030 dry heath; Constant and preferential plant species of the H4 (and U3), H8, H10, H12 (and H12/M15d) vegetation types at this SAC</p> <p>Assemblage of moorland breeding birds</p> <p>Heath fritillary butterfly <i>Mellicta athalia</i></p>	See notes for this attribute in Table 1 above.	<p>RSPB (1994) Exmoor Moorland Breeding Bird Survey 1992/93. RSPB, Exeter</p> <p>ENPA (1999) Dartford warbler Breeding Season Survey 1999.</p> <p>RSPB (2002) Exmoor Moorland Breeding Bird Survey 2002.</p> <p>SIM, I. & DOUGLAS, D. (2014) Exmoor Breeding Bird Survey 2014. RSPB.</p> <p>MCCRACKEN, M. BROOK, S., BULMAN, C. & BOURN, N. (2007) Status of the Heath fritillary <i>Mellicta athalia</i> on Exmoor in 2007. Butterfly Conservation.</p> <p>PLACKETT, J. & KELLY, C. (2014). Heath Fritillary on Exmoor: 2014 Status Report. Butterfly Conservation Report No. S14-17 November 2014</p> <p>Some elements may be periodically monitored as part of Natural England's SSSI condition assessments</p>
Structure and function (including its typical)	Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface	Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted succession to a different and less desirable state.	This attribute will be periodically monitored as part of Natural England's SSSI

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
species)		<p>condition, soils, nutrient levels or hydrology which may encourage their spread:</p> <p>Non-native invasives to 0%: Rhododendron (<i>Rhododendron ponticum</i> inc. <i>R. ponticum</i> x <i>R. maximum</i>); Invasive knotweeds (<i>Fallopia sachalinensis</i>, <i>F. japonica</i> x <i>F. sachalinensis</i>, <i>F. japonica</i>, <i>Persicaria wallichii</i>); Prickly Heath <i>Gaultheria mucronata</i>; Himalayan balsam <i>Impatiens grandiflora</i>. Indicators of disturbance to <10%: rushes <i>Juncus effusus</i>, <i>J. squarrosus</i></p>	<p>Often these species 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.</p>	<p>condition assessments</p>
	Functional connectivity with wider landscape	<p>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>	<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.</p> <p>The Exmoor and Quantocks Oakwoods SAC is adjoining this SAC for significant parts of its boundary and includes similar qualifying features. The North Exmoor SSSI includes smaller areas of dry heath outside the SAC boundary. It, and parts of other component SSSIs, will act as a network of habitats to support species which range more widely such as the birds, invertebrates forming part of meta-populations such as the heath fritillary and high brown fritillary</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Adaptation and resilience	Maintain the H4010 and H4030 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.</p> <p>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. The overall vulnerability of this particular SAC to climate change has been assessed by Natural England as being <i>low</i>, taking into account the sensitivity, fragmentation, topography and management of its habitats. This means that this site is considered to be vulnerable overall but 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 required.</p>	NATURAL ENGLAND, 2015. Climate Change Theme Plan and National Biodiversity Climate Change Vulnerability Assessments (NBCCVAs) .
	Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain and restore the structure, functions and supporting processes associated with the H4010 and H4030 features	<p>Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site.</p> <p>Further details about the necessary conservation measures for this site can be provided by contacting Natural England. 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>	NATURAL ENGLAND, 2015. Site Improvement Plan: Exmoor Heaths (SIP081)
	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 H4010 and H4030 habitats.	<p>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.</p> <p>Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			This Annex 1 habitat has essentially raw soils with little humus and low nutrient status.	
	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 the features of the site on the Air Pollution Information System (www.apis.ac.uk).	<p>These habitat types are considered sensitive to changes in air quality, especially nitrogen, acidity and ammonia.</p> <p>See notes for this attribute in Table 1 above.</p> <p>A 'restore' target has been included here as the Critical Loads and levels are currently being exceeded at present and present a risk to this vegetation</p>	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.
	Water quality	Where the feature is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the H4010 feature.	<p>See notes for this attribute in Table 1 above.</p> <p>Water quality in the area is generally good, with all watercourses flowing through the cSAC achieving RE1 in 2000 and 2001.</p> <p>With reference to the EA's River Basin Management Plan 2 and the Catchment Data Explorer tool, the following water body classifications and reasons for not achieving good in 2014 are provided: Upper East Lyn – Poor – failing due to barriers to fish Lower East Lyn - Good Badgworthy Water – Good Farley Water – Poor – failing due to barriers to fish West Lyn river – Poor – failing due to barriers to fish</p>	<p>See EA 2005 under Vegetated sea cliffs feature</p> <p>ENVIRONMENT AGENCY South West River Basin Management Plan, December 2015.</p> <p>ENVIRONMENT AGENCY (2016) Catchment Data Explorer</p>
Supporting processes (on which the feature relies)	Hydrology	At a site level, restore the natural hydrological regime to provide the conditions necessary to sustain the H4010 feature within the site	Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts.	<p>See EA 2005 under Vegetated sea cliffs feature</p> <p>NATURAL ENGLAND, 2015. Site Improvement Plan: Exmoor Heaths (SIP081).</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>A 'restore' target has been included here as areas of degraded wet heath are being affected by networks of drainage ditches, although a programme of blocking drainage channels to improve the wetland habitats of the SAC is being implemented.</p> <p>In general the site is robust hydrologically, because it largely forms the headwaters of streams on semi-natural moorland vegetation, and therefore exists 'up-gradient' of discharges or abstractions. However, the mosaic of habitats associated with heaths includes valley mires and wet flushes and these are vulnerable to ditching, erosion and possibly to new changes in water table from adjacent land.</p>	<p>EXMOOR MIRES PARTNERSHIP, 2016. Hydrological restoration by blocking drainage ditches.</p>
<p>Version Control Advice last updated: n/a</p>				
<p>Variations from national feature-framework of integrity-guidance:</p> <p>Vegetation structure: cover of dwarf shrubs has been adapted to allow a lower cover or frequency of <i>Erica tetralix</i> where other indicator species cover remains high. Vegetation structure: cover of gorse merged with Vegetation structure: tree cover</p>				

Table 3: Supplementary Advice for Qualifying Features: H7130. Blanket bogs *

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 H7130 habitat feature at c. 286 ha.	See notes for this attribute in table 2 above. Note that the BAP Priority Habitat Inventory (PHI) is unreliable for blanket bog on Exmoor because of a combination of: (1) blanket bog vegetation occurring on shallow peats, (2) vegetation survey was not available digitally, (3) polygons were frequently mapped to SSSI unit boundaries not to vegetation types, (4) some units were mapped as Grass Moorland (Non BAP) rather than blanket bog, and (5) peat depth data were not available at the time.	NATURAL ENGLAND. Areas of Blanket bog measured from Webmap BAP Priority Habitat Inventory on 11.2.16 excluding areas of upland heath but as corrected by (a) interpretation of 2008 air photo and (b) field peat depth survey in BOWES, A C. (2006) Exmoor Blanket Bog Inventory and Restoration Plan for English Nature, Masters Degree Project, Faculty of Environmental Design, University of Calgary.
	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H7130 feature, including where applicable its component vegetation types, across the site	See notes for this attribute in table 2 above. Fragmentation of blanket bog can arise where areas are drying out through drainage, and/or burning management encourages a species-poor community dominated typically by <i>Calluna vulgaris</i> or <i>Molinia caerulea</i> . True bog species become fragmented or are lost. Hydrological fragmentation of the bog system can also occur.	See BOWES 2006
Structure and function (including its typical species)	Vegetation community composition	Ensure the component vegetation communities of the H7130 feature are referable to and characterised by the following National Vegetation Classification type(s): M1 <i>Sphagnum auriculatum</i> , M2 <i>Sphagnum cuspidatum</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 will also help to conserve their typical plant species (i.e. the constant and preferential species of a	For vegetation types and surveys see sources for wet heath listed above. See also BOWES 2006.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p><i>recurvum</i>, M3 <i>Eriophorum angustifolium</i> bog pool communities</p> <p>M17 <i>Scirpus cespitosus</i> – <i>Eriophorum vaginatum</i> blanket mire</p> <p>Intermediates or transitions to wet heaths (M15, M15/H12, M15/M25), dry heaths (H12) and mires (M6, M21, M23, M25)</p>	<p>community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).</p> <p>As blanket bog 'blankets' extensive areas it is not surprising that the habitat supports a range of different vegetation communities. Transitions can occur between bog pools, wetter <i>Sphagnum</i> lawns, through to more mixed terrestrial bog communities associated with both hummocks and hollows. At its margins (normally on the steeper slopes), blanket bog communities will gradually be lost and replaced by wet heath and dry heath communities.</p> <p>Blanket bog communities can be heavily influenced by land management practices, notably drainage, managed rotational burning and/or grazing. In these situations typical blanket bog communities are replaced with a variety of mire (M15, M16, M25), dry heath (H8, H12) or acid grassland (U5, U6) vegetation types. Where these vegetation types occur on deeper peats, they should be assessed as blanket bog and restoration back to blanket bog in favourable condition should be the objective.</p> <p>Normally blanket bog occurs on peats 0.4m or deeper on Exmoor, but can sometimes become established on peats shallower than 0.4m.</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 H7130 feature	<p>Invasive or introduced non-native species can be a serious potential threat to the structure and function of these habitats, because they are able to exclude, damage or suppress the growth of their associated typical species, reduce structural diversity of the habitat and prevent the natural regeneration of characteristic site-native species.</p> <p>Once established, the measures to control such species may also impact negatively on the features of interest (eg use of broad spectrum herbicides).</p>	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Presence/cover of woody species	Maintain a low cover (<10% of the area) of scrub or trees within stands of H7130.	<p>Native trees and shrubs which can tolerate permanently waterlogged conditions can occur naturally on bog and fen surfaces.</p> <p>An abundance of scrub and trees on bogs and fens is sometimes regarded as detrimental because water is lost by evapotranspiration from the trees and, as the tree canopies develop and close, water is further prevented from reaching the bog surface by interception. This can reduce the amount of water reaching the bog surface.</p> <p>Birch, pine, willow and rhododendron (an invasive non-native species)</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)
			<p>are the main species of concern. The seeds of most invasive woody species are wind-dispersed, so trees are able to establish on raised bog and fen surfaces.</p> <p>This excludes dwarf birch <i>Betula nana</i> and bog myrtle <i>Myrica gale</i> which should be retained if present.</p>	
Structure and function (including its typical species)	Vegetation composition: undesirable species	<p>Ensure the following undesirable competitive species are either absent or rare (individually and collectively less than 1% of vegetation cover);</p> <p>Common bent-grass <i>Agrostis capillaris</i>, Yorkshire fog <i>Holcus lanatus</i>, common reed <i>Phragmites australis</i>, bracken <i>Pteridium aquilinum</i>, creeping buttercup <i>Ranunculus repens</i>.</p>	These are species not considered to be a desirable part of the blanket bog vegetation community as they may spread and out-compete more sensitive typical species	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Structural diversity	Maintain or restore as necessary the full range of typical structural features associated with the H7130 feature at this site, e.g. vegetation cover, surface patterning and hydrological zonations	<p>Bogs in particular show varying degrees of structural variation and surface patterning reflecting hydrological gradations (which may be natural or the result of previous damage). These can occur at different macro and micro scales across the habitat and include alternative aquatic and terrestrial surface features, such as pools and hummocks, and terrestrial features such as ridges and hollows.</p> <p>These features will support distinctive patterns of bog vegetation, and so will be sensitive to changes in topography and hydrology. These can be modified or disrupted by activities such as drainage, burning, grazing, vehicular access and peat digging. These are likely to be missing or poorly represented in degraded blanket bog systems. These components may include areas with noticeably uneven structure, at a spatial scale of around 1 m² or less. The unevenness should be the result of <i>Sphagnum</i> hummocks, lawns and hollows, or mixtures of well-developed cotton-grass tussocks and spreading bushes of dwarf-shrubs.</p> <p>The full range of features are not often present on Exmoor due to past peat cutting, 19th century drainage or historic burning. A 'restore' target has been included as well as 'maintain' here as some units have been subject to more burning and drainage than others so that peat depths</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			and patterning or surface features can be absent to rare.	
Structure and function (including its typical species)	Physical structure: ground disturbance (and peat erosion)	Ensure significant areas of disturbed and eroding bare ground are not present. Where present, any affected areas should typically not exceed 1% of the total H7130 feature, and be considered only as a temporary stage.	Bare ground and eroding peat not only affects the hydrology of bog systems and its associated biodiversity but can also have wider environmental impacts e.g. water quality. There will also be a carbon loss from the system.	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Soils, substrate and nutrient cycling	Maintain and restore the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungi:bacteria ratio, to within typical values for the H7130 habitat. For this feature the peat substrate should consist of both acrotelm and catotelm layers.	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. Peat is a soil distinguished from other soil types by its high content of organic matter (30%-100%). The organic matter content results form a combination of plant growth and waterlogging, the latter reducing oxygen diffusion to levels which are so slow that decomposition of the dead plant matter uses up this oxygen faster than it can be supplied. Consequently conditions rapidly become anaerobic, which reduces decomposition rates and the semi-decomposed plant material builds up over time to form peat. The upper surface of an active blanket bog should be made up of two layers. The thin (5-75cm) upper layer or 'acrotelm' consists of living plant material and is a zone of fluctuating water table, where relatively rapid plant decomposition occurs. Below this is the 'catotelm', a much thicker layer of peat (up to 10m) consisting of broken down plant material, and which is always below the water table. Degraded blanket bogs may have lost the acrotelm layer, and now has layer of damaged catotelm ('haplotelm') at the surface.	For peat depths see BOWES 2006 and reports in the Resources section of the website of the EXMOOR MIRES PARTNERSHIP
Structure and function (including its typical species)	Adaptation and resilience	Maintain the H7130 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the	See notes for this attribute in table 2 above.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		site		
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	<p>Maintain the abundance of the species listed below to enable each of them to be a viable component of the H7130 habitat:</p> <p>Peat-forming species including bog-mosses <i>Sphagnum</i> spp. and cotton-grasses <i>Eriophorum</i> spp.</p> <p>Constant and preferential plant species of the M17, M17/M15, M1-M3 vegetation types at this SAC</p> <p>Assemblage of moorland breeding birds (see Wet heaths)</p>	See notes for this attribute in Table 2 above.	<p>For birds, see Wet heaths above</p> <p>Some elements may be periodically monitored as part of Natural England's SSSI condition assessments</p>
Supporting processes (on which the feature relies)	Air quality	<p>Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the H7130 feature of the site on the Air Pollution Information System (www.apis.ac.uk).</p>	<p>This habitat type is considered sensitive to changes in air quality, especially nitrogen, acidity and ammonia.</p> <p>A 'restore' target has been included here as minimum and maximum Critical Loads and Levels are currently being exceeded and present a risk to this vegetation.</p> <p>See notes for this attribute in Table 2 above.</p>	<p>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.</p> <p>See also EA 2005 as above under Vegetated sea cliffs feature.</p>
	Hydrology	<p>At a hydrological unit or catchment level), maintain and restore the natural hydrological processes to provide consistently near-surface water levels necessary to sustain the H7130 feature within the site</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.</p> <p>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>See EA 2005 as above under Vegetated sea cliffs feature.</p> <p>EXMOOR MIRES PARTNERSHIP, 2016. Hydrological restoration by blocking drainage ditches</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>For this feature, various land management activities may impact on and interrupt natural hydrological processes and water levels. The loss of the acrotelm layer normally reflects significant changes to the hydrology of the bog. An increase in the cover of heather on the bog surface will also indicate a drying out of the bog, and can lead to further drying out through an increase in sub-surface peat pipes.</p> <p>Fire can also influence the near-surface hydrological functioning of peatland. This leads to enhanced overland flow and higher streamflow peaks and, in combination with a removed vegetation cover, can exacerbate surface erosion.</p>	
Supporting processes (on which the feature relies)	Conservation measures	Implement those management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain or restore the structure, functions and supporting processes associated with the H7130 feature	<p>Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site.</p> <p>Further details about the necessary conservation measures for this site can be provided by contacting Natural England. 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>EXMOOR MIRES PARTNERSHIP, 2016. Hydrological restoration by blocking drainage ditches</p> <p>NATURAL ENGLAND, 2015. Site Improvement Plan: Exmoor Heaths (SIP081)</p>
Version Control				
Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 4: Supplementary Advice for Qualifying Features: H7230. Alkaline fens

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 H7230 feature to < 2 hectares	<p>There should be no measurable net reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored.</p> <p>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. 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>NVC survey is not at all comprehensive and the small occurrences of fen and its M10 component type may not be mapped. Existing surveys have identified the presence of M10 (specifically the M10a <i>Carex demissa-Juncus bulbosus/kochii</i> sub-community) at 8 locations within the SAC including Chetsford Water, Brendon Common, Farley Water, Hoar oak Water and on The Chains/Pinkery. Estimates of area have not been made for some sites so the upper limit of <2 ha is an informed judgement at this stage.</p>	<p>GREEN, S. (1997) Vegetation Survey Pinkworthy/The Chains. Aug/Sept 1997. Unpublished Report for Exmoor National Park, Dulverton</p> <p>JERRAM, R. (1999) Exmoor Heaths: Survey of National Vegetation Classification Communities. Unpublished Report for Natural England, Taunton</p> <p>SANDERSON, N. (2000) Holnicote Moorland Survey. National Trust.</p> <p>See EA 2005 as above under Vegetated sea cliffs feature.</p>
	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H7230 feature, including where applicable its component vegetation types, across the site	<p>Distribution includes the spatial pattern or arrangement of this habitat feature, and its component vegetation types, across the site.</p> <p>Changes in distribution may affect the nature and range of the vegetation communities present, the operation of the physical, chemical, and biological processes in the system and the resiliency of the site and its features to changes or impacts.</p>	See above.
Structure and	Vegetation	Ensure the component	This habitat feature will comprise a number of associated semi-natural	See above.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
function (including its typical species)	community composition	vegetation communities of the H7230 feature are referable to and characterised by the following National Vegetation Classification type: M10a <i>Carex dioica</i> – <i>Pinguicula vulgaris</i> mire, <i>Carex demissa-Juncus bulbosus/kochii</i> sub-community mire	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. For this feature this may typically be the M10 type; they may be transitional and represent base-rich flushes within larger M6 mires. To date, they have been assessed as a group with other mires.	
	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 H7230 feature	Invasive or introduced non-native species can be a serious potential threat to the structure and function of these habitats, because they are able to exclude, damage or suppress the growth of their associated typical species, reduce structural diversity of the habitat 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).	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Presence/cover of woody species	Maintain a low cover of scattered trees/scrub of not more than 10%. Woody species should be absent from flushes or springs; low <i>Salix</i> sp acceptable more than 5m from edge of spring/flush feature.	Native trees and shrubs occur naturally on bog and fen surfaces but an abundance of scrub and trees on bogs and fens is sometimes regarded as detrimental because they are indicators and perpetrators of drying out and may cause damage to vegetation structure through shading effects. Birch, pine, willow and rhododendron (an invasive non-native species) are the main species of concern. The seeds of most invasive woody species are wind dispersed, so trees are able to establish on raised bog and fen surfaces.	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Browsing and grazing by herbivores	Maintain an appropriate level of grazing compatible with maintaining the H7230 feature	These habitat features are often preferentially grazed and may be vulnerable to significant overgrazing pressure associated with the management of the wider local landscape.	
	Exposed substrate	Maintain the exposure of the substrate at appropriate levels, which will typically be <10% across the H7230 feature but locally can be up to 25% of *disturbed bare ground.	For this wetland habitat type, maintaining some continuous extent of exposed, open ground surface is required to support the establishment and supply of those component species which often rely on wet and sparsely-vegetated conditions. The open nature and sometimes skeletal nature of the substrate supporting these features requires a higher upper threshold than for some other wetlands. * Disturbed bare ground is where a substrate of bare humus, bare peat,	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)
			bare mineral soil, bare gravel, or soil covered only by an algal mat, has its surface broken and imprinted by hoof marks, wallows, human foot prints, or vehicle and machinery tracks. The emphasis is on 'disturbed' rather than 'bare'	
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H7230 habitat: Constant and preferential plant species of the M10 vegetation type at this SAC: Brown mosses, <i>Briza media</i> , <i>Carex flacca</i> , <i>Carex hostiana</i> , <i>Carex viridula</i> , <i>Carex panicea</i> , <i>Carex pulicaris</i> , <i>Juncus articulatus</i> , <i>Linum catharticum</i> , <i>Pinguicula vulgaris</i>	See notes for this attribute in table 2 above. Some typical M10 species are not present in the South-west or Exmoor (including <i>Carex dioica</i> , <i>Primula farinosa</i> , <i>Selaginella selaginoides</i>)	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Hydrology	At a unit level, maintain natural hydrological processes to provide the conditions necessary to sustain the H7230 feature within the site, including maintaining a high piezometric head and permanently high water table (allowing for natural seasonal fluctuations).	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.	See EA 2005 as above under Vegetated sea cliffs feature.
	Water chemistry	Maintain the low nutrient status of water irrigating the H7230 feature, ensuring it is rich in base ions, particularly calcium.	The H7230 feature is a type of wetland which critically depends on specific groundwater flows and chemistries. This feature is typically found in permanently saturated, base-poor, oligotrophic conditions where there is flowing, rather than standing, water. There should be no indications of localised nutrient enrichment or pollution which might be attributed to water quality. This includes the presence of algal blooms in watercourses.	See EA 2005 as above under Vegetated sea cliffs feature.
Structure and function (including its	Adaptation and resilience	Maintain the H7230 feature's ability, and that of its supporting processes, to adapt or evolve to	See notes for this attribute in table 2 above.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)		wider environmental change, either within or external to the site		
	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.</p> <p>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.</p> <p>This habitat type occurs on Exmoor as very small patches (<10 x 10m) within larger spring-line/valley mire habitat. It is critical to the alkaline fen habitat to ensure the functioning of this wider habitat.</p>	See habitat surveys under Wet heaths above
Supporting processes (on which the feature relies)	Air quality	Maintain as necessary the concentrations and deposition of air pollutants 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>See notes for this attribute in Table 2 above.</p> <p>This habitat type is considered sensitive to changes in air quality.</p> <p>Alkaline fens is the only SAC habitat with a Critical Load (for Rich fens, 15-30kg N/ha/yr) where nitrogen deposition (max 23.2 - 12.2 min, average 20 kg N/ha/yr) falls well below the maximum Critical Load (but does exceed the minimum CL).</p>	<p>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</p> <p>See also EA 2005 as above under Vegetated sea cliffs feature.</p>
	Conservation measures	Implement those 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	<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</p>	NATURAL ENGLAND, 2015. Site Improvement Plan: Exmoor Heaths (SIP081)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		H7230 feature	Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: Exposed substrate – adjusted to reflect CSM Upland Guidance where no lower limit of bare ground is set. Integrity of tufa features - no tufa features are known on Exmoor within the SAC so this attribute is not applicable.				

Table 5: Supplementary Advice for Qualifying Features: H91A0. Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

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 H91A0 feature to not less than 111.7 ha.	<p>See notes for this attribute in Table 2 above.</p> <p>For this feature tree roots (particularly of veteran trees) can extend a considerable distance beyond the boundary of the site. 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).</p> <p>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>NATURAL ENGLAND. 2014. Area of habitat measured as Deciduous woodland BAP habitat (or National Forest Inventory where missing e.g. Neck Wood) from Webmap on 10.2.16 (Exmoor Coastal Heaths SSSI 3.8 ha + West Exmoor Coast & Woods SSSI 11.4 ha+ South Exmoor SSSI 31.7 ha + North Exmoor SSSI 64.8 ha).</p> <p>NATIONAL TRUST (1990) Biological Survey: West Exmoor Coast, Devon</p> <p>BOYCE, D.C. (2009). Exmoor Woodland Deer Study. Exmoor National Park & Natural England</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI condition assessments</p>
	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H91A0 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. This may also reduce and break up the continuity of a habitat within a site	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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 woodland 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 H91A0 feature are referable to and characterised by the following National Vegetation Classification type (s):</p> <p>W10, W11, W16, W17 and W7</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>BOYCE, D.C. (2009). Exmoor Woodland Deer Study. Exmoor National Park & Natural England.</p> <p>This attribute will be periodically monitored as part of Natural England's SSSI condition assessments</p>
	Vegetation structure - canopy cover	<p>Maintain an appropriate tree canopy cover across the H91A0 feature, which will typically be between 30-90% of the site (except in wood pasture stands or in lichen rich stands where the minimum cover is 20%).</p>	<p>Canopy cover is the overall proportion of vegetative cover consisting of any woody layer ranging from established regeneration to mature and veteran stages.</p> <p>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 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</p>	<p>See BOYCE (2009) above.</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)
			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.	
Structure and function (including its typical species)	Vegetation structure - open space	Maintain areas of permanent/ temporary open space within the H91A0 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. 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.	See BOYCE (2009) above. This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Vegetation structure - old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 10% of the H91A0 feature at any one time) and the assemblages of veteran and ancient trees (typically 5-10 trees per hectare).	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. 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.	MOSAIC MAPPING (2011) Horner Wood Tree Survey Part 2. Report to National Trust, Holnicote. This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Vegetation structure - dead wood	Maintain the continuity and abundance of standing or fallen dead and decaying wood, (typically between 30 - 50 m3 per hectare of standing or fallen timber or 3-5 fallen trees >20cm per hectare, and minimum 5-10 standing dead trees per hectare)	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, with associated hole-nesting birds and roosting bats, all of which may be very typical of the feature.	See BOYCE (2009) above. This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	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 BOYCE (2009) above. This attribute will be periodically monitored as part of Natural England's

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				SSSI condition assessments
	Vegetation structure - shrub layer	Maintain an understorey covering at least 10% of total woodland 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. This attribute applies except in wood-pasture stands where there is no effective minimum and in lichen-rich areas where dense shrub or climber growth (particularly of evergreens e.g. rhododendron, ivy and holly around tree trunks) should be no more than 10%	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	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.	
	Adaptation and resilience	Maintain the resilience of the H91A0 feature by ensuring a diversity (at least 3 species) of site-native trees (eg sessile oak, birch, holly, rowan, willow) across the site.	See notes for this attribute in Table 2 above.	
	Browsing and grazing by herbivores	Maintain browsing at a low to moderate level that allows an understorey with some grazing sensitive species evident (bramble, ivy etc), and tree seedlings and sapling common in larger gaps.	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. 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.	See BOYCE (2009) above. 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)
			Higher levels of browsing are tolerated on this site as wood pasture origins are present in many areas, large woodland blocks are grazed by red deer and grazing is critical for the maintenance of the oak woodland lichen interest feature. Without grazing the lower plants would be shaded out by growth of ground flora, undergrowth shading trunks and epiphytes such as ivy.	
Structure and function (including its typical species)	Regeneration potential	<p>Maintain the potential for sufficient natural regeneration of desirable trees and shrubs to occur;</p> <p>typically seedlings and saplings of desirable species should be visible in sufficient numbers in large (> 1ha) canopy gaps, at the wood edge and/or as regrowth as appropriate at a sufficient density to maintain canopy density over a 50 year period ;</p>	<p>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.</p> <p>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> <p>Less regeneration (50 year period) is accepted on this site as wood pasture origins are present in many areas, large woodland blocks are grazed by red deer and grazing is critical for the maintenance of the oak woodland lichen interest feature. Without grazing the lower plants would be shaded out by growth of ground flora, undergrowth shading trunks and epiphytes such as ivy.</p>	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	Tree and shrub species composition	<p>Maintain a canopy and understorey of which 95% is composed of site native trees and shrubs:</p> <p>Sessile oak <i>Quercus petraea</i> and pedunculate oak <i>Q. robur</i>, ash <i>Fraxinus excelsior</i>, birch <i>Betula</i> spp., holly <i>Ilex aquifolium</i>, alder <i>Alnus glutinosa</i>, hazel <i>Corylus avellana</i>, rowan <i>Sorbus aucuparia</i>, sallows <i>Salix</i> spp., hawthorn <i>Crataegus monogyna</i>, field maple <i>Acer campestre</i> and yew <i>Taxus baccata</i>.</p>	<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.</p> <p>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>	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)
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	<p>Maintain the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitat:</p> <p>Sessile oak <i>Quercus petraea</i>, holly <i>Ilex aquifolium</i>, ferns <i>Blechnum</i> ssp</p> <p>Assemblage of epiphytic lichens</p> <p>Assemblage of Atlantic bryophytes including oceanic species such as <i>Hyocomium armoricum</i>, <i>Plagiochila spinulosa</i>, <i>Scapania gracilis</i>, <i>Saccogyna viticulosa</i></p> <p>Endemic and rare <i>Sorbus</i> species including Slender whitebeam <i>Sorbus subcuneata</i>, Bloody whitebeam <i>S. vexans</i>, Margaret's whitebeam <i>S. margaretae</i> and No Parking whitebeam <i>S. admonitor</i>.</p> <p>Assemblage of breeding woodland birds including strong populations of pied flycatcher <i>Ficedula hypoleuca</i>, wood warbler <i>Phylloscopus sibilatrix</i> and redstart <i>Phoenicurus phoenicurus</i></p> <p>Barbastelle bat (feeding)</p> <p>Otter <i>Lutra lutra</i> (feeding, shelter)</p>	<p>See note for this attribute in table 2 above.</p> <p>Otters have been recorded on many rivers and streams arising on the moorland but with most records in the woodland</p>	<p>SANDERSON, N. A. (2009) North Exmoor SSSI – Site Dossier for Lichen Interest. A report by Botanical Survey & Assessment to Natural England.</p> <p>SANDERSON, N.A. (2013) Horner wood NNR Lichen Survey Part 1, Western Combes, Somerset 2012. Lichen Survey For National Trust.</p> <p>BOYCE, D. & FRESHNEY, F. (2014) Exmoor & Quantock Woodland– Breeding bird assemblage survey of SSSI Woodlands 2014. Report to Natural England.</p> <p>GREEN ECOLOGICAL CONSULTANCY (2000) Preliminary report on further research on Barbastelle Bat at Holnicote Estate. For National Trust/ English Nature</p> <p>BAT CONSERVATION TRUST (2011) Common Standards Monitoring through the NBMP.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		and breeding)		Results 2011. Report to Natural England Prepared by Dr Kate Barlow and Philip Briggs, April 2012. Other species records available from Somerset or Devon Local Records Centre or the NBN Gateway
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 H91A0 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 hogweed and Himalayan balsam, for example. Similarly, this would include pheasants, rabbits and non-native invertebrate 'pest' species.	This attribute will be periodically monitored as part of Natural England's SSSI condition assessments
	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 H91A0 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.	
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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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.</p> <p>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.</p>	
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 Pollution Information System (www.apis.ac.uk).	<p>This habitat type is considered sensitive to changes in air quality.</p> <p>A 'restore' target has been included here as the maximum Critical Loads and Levels are being exceeded and present a risk to this vegetation.</p> <p>See general notes for this attribute in Table 2 above</p>	<p>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</p> <p>See also EA 2005 as above under Vegetated sea cliffs feature.</p>
	Hydrology	At a site, hydrological or catchment level, maintain natural hydrological processes to provide the conditions necessary to sustain the H91A0 feature within the site	<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 the 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>At this SAC, spring-lines where water emerges at the surface supply small areas of wetter woodland. Disruption or damage to these springs or the hydrological processes which supply them could be caused by activities at some distance from the site boundary.</p>	See also EA 2005 as above under Vegetated sea cliffs feature.
	Illumination	Maintain any artificial light at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H91A0 feature and its typical species at this site.	<p>Woodland biodiversity has naturally evolved with natural patterns of light and darkness, so disturbance or modification of those patterns can influence numerous aspects of plant and animal behaviour.</p> <p>For example, light pollution (from direct glare, chronically increased illumination and/or temporary, unexpected fluctuations in lighting) can affect animal navigation, competitive interactions, predator-prey relations, and animal physiology.</p>	EXMOOR NATIONAL PARK AUTHORITY IDSA Dark Sky Places Annual Report October 2014 -2015

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Flowering and development of trees and plants can also be modified by un-natural illumination which can disrupt natural seasonal responses.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: Browsing and grazing by herbivores and Regeneration potential adapted to reflect wood pasture conditions or the importance of epiphytic lichens. Vegetation structure - canopy cover and Vegetation structure - shrub layer adapted to reflect wood pasture conditions or the importance of epiphytic lichens. Vegetation structure - old growth and Vegetation structure - deadwood adapted to minimum 10% (cf. 20%) over-maturity, 5-10 trees/ha (cf. 10 trees/ha) or 3 fallen lying trees >20cm (3-5 trees >30cm)				

