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

Yewbarrow Woods Special Area of Conservation (SAC)
Site Code: UK00300306

© Teresa Morris, Natural England

Date of Publication: 7 February 2019

About this document

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

This advice should therefore be read together with the SAC Conservation Objectives available here.

You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England when developing, proposing or assessing an activity, plan or project that may affect this site.

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

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

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

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

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

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

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

About this site

European Site information

Name of European Site	Yewbarrow Woods Special Area of Conservation (SAC)
Location	Cumbria
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	1 April 2005
Qualifying Features	See below
Designation Area	112.89 ha
Designation Changes	N/A
Feature Condition Status	Details of the feature condition assessments made at this site can be found using Natural England's Designated Sites System
Names of component Sites of Special Scientific Interest (SSSIs)	Yewbarrow Woods SSSI. The SAC and SSSI have the same boundary.
Relationship with other European or International Site designations	None

Site background and geography

The Yewbarrow Woods lie within the South Cumbria Low Fells National Character Area (NCA Profile 19). It is an undulating landscape of irregular and sometimes rocky hills, hollows and ridges dissected by a north-south oriented drainage pattern of tarns, the major lakes of Windermere and Coniston Water, rivers and streams contained within often sheltered valleys. The area is underlain by marine sedimentary grits and fissile mudstones of Silurian age. The varying hardness of these rocks contributes to the complex topography of the area.

Yewbarrow Woods are situated on the flanks of Yewbarrow, a ridge of ground forming the watershed between the Rusland Valley and the River Leven. They lie within the well-wooded foothills of the Cumbrian mountains and display the range of woodland types typical of the area. These ancient semi-natural woodlands form one of the largest areas of interconnected woodland in England, and are associated with considerable industrial activity in the past, providing timber for charcoal production for iron smelting and bobbins for the local weaving industry.

The woodland on this site is chiefly composed of oak and birch with occasional beech but the site is particularly notable for the extensive stands of yew, a species more commonly associated with the limestone woodlands to the east, which are scattered throughout. The ground flora tends to be dominated by grasses, and in areas where the canopy is dominated by beech and denser yew the ground flora component is absent. The development of the yew component to the woodland stand on these more acidic conditions compared with other yew stands in the area are a major reason for the designation of this site

Yew often forms an understorey element to the woods along with holly and hazel, but yew is also prominent on crags on the upper slope and in Yewbarrow Dale forms the main canopy tree. On the

upper edges of the woodland there is a transition to juniper scrub and then heath. The transition is well developed on this site, especially in more sheltered locations.

Numerous small streams pass through the woodland and the richer soils of their valleys support ash and sycamore, with wych elm and occasional small-leaved lime. Hazel is an important component of the understorey. In poorer drained locations alder is dominant and in these situations a more diverse ground flora is present.

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:

- **H5130. *Juniperus communis* formations on heaths or calcareous grasslands**

The relationship between juniper *Juniperus communis* stands and other types of vegetation is complex. In some cases the stands have no characteristics to separate them from typical examples of heath or calcareous grassland vegetation, except for the abundance of juniper. These are often relatively recent stands. However, at some sites, particularly where the juniper has been present for a longer period, a more distinctive assemblage of species occurs, and the juniper is associated with other shrubs, shade-tolerant herbs, grazing-sensitive tall herbs, bryophytes and ferns.

The main ecological variation occurs between stands on calcareous substrates (principally chalk and limestone but sometimes calcareous drift) and those found on acid substrates. Calcareous types are mainly found in the southern part of the UK, while acid types are mainly found in northern areas. However, both calcareous and acid types can be found on the same sites in northern England and Scotland. Juniper stands at Yewbarrow are found on the upper western slopes of the site as the woodland thins out towards a grass-heath community. Larger and denser stands favor the more sheltered south-eastern facing valley sides.

In northern England and Scotland juniper is found on a wide range of acidic substrates supporting acidophilous plant communities. In many instances these are simply stands of heathland or acidic grassland that have become invaded by juniper. However, at sites where the juniper has been established for longer, the community corresponds to NVC type W19 *Juniperus communis* ssp. *communis – Oxalis acetosella* woodland. Such vegetation is typically dominated by juniper, with downy birch *Betula pubescens* and rowan *Sorbus aucuparia* often scattered throughout. The understorey is rich in acidophilous species, such as bilberry *Vaccinium myrtillus*, wood-sorrel *Oxalis acetosella*, heath bedstraw *Galium saxatile* and hairy wood-rush *Luzula pilosa*. Species with a northern distribution, including chickweed wintergreen *Trientalis europaea*, twinflower *Linnaea borealis* and lesser twayblade *Listera cordata*, occur locally. There is usually a well-developed layer of pleurocarpous mosses and ferns. On lower slopes with flushing and on more base-rich substrates the flora is enriched by species that reflect an increased base-status, such as common dog-violet *Viola riviniana*, dog's mercury *Mercurialis perennis* and northern bedstraw *Galium boreale*.

At higher altitude on limestone, juniper scrub is often associated with limestone pavements and calcareous cliffs and screes. Beyond the distribution range of many rosaceous shrubs and often in heavily grazed situations, such scrub may be relatively poor in specialist scrub species. In such circumstances the vegetation has affinities to the species-poor juniper scrub more usually found on acidic substrates.

A range of juniper scrub types may occur within individual sites, and these may include both calcareous and acidic forms, altitudinal variations and transitions to a range of habitats.

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

This habitat type comprises a range of woodland types dominated by mixtures of oak (*Quercus robur and/or Quercus petraea)* and birch (*Betula pendula* and/or *Betula 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 habitat forms the key component of the woodland mix on this site and conforms to two main NVC communities W11 *Quercus petraea – Betula pubescens – Oxalis acetosella* woodland and W17 *Quercus petraea – Betula pubescens – Dicranum majus* woodland.

The habitat shows considerable variation across its range, in terms of the associated ground flora and the richness of bryophyte communities. There is also a continuous spectrum of variation between oak-dominated and birch-dominated stands. Often these local variations reflect factors such as rainfall, slope, aspect, soil depth, and past and present woodland management (e.g. coppicing, planting, grazing). The most distinctive forms of the habitat have a ground flora dominated by bryophytes, such as *Dicranum majus*, *Hylocomium splendens*, *Isothecium myosuroides*, *Plagiothecium undulatum*, *Rhytidiadelphus loreus*, *Bazzania trilobata* and *Plagiochila spinulosa*. Other variants include stands in which the ground flora is characterised by the prominence of dwarf shrubs, such as bilberry *Vaccinium myrtillus*; grasses, such as wavy hair-grass *Deschampsia flexuosa*, common bent *Agrostis capillaris* and sweet vernal-grass *Anthoxanthum odoratum*; and plants indicative of more mesophytic conditions, including bluebell *Hyacinthoides non-scripta*, bramble *Rubus fruticosus* and scaly male-fern *Dryopteris affinis*.

Frequently the oak woodland occurs as part of a mosaic of woodland types that varies with position on the slope, occurrence of streams or other waterbodies, and local soil enrichment. These transitions are important in maintaining the structure and function of the habitat type and differ across the country.

- **H91J0. *Taxus baccata* woods of the British Isles; Yew-dominated woodland**

Yew *Taxus baccata* woodland occurs on shallow, dry soils usually on chalk or limestone slopes, but in a few areas stands on more mesotrophic soils are found. The habitat is classified as NVC type W13 *Taxus baccata* woodland. Within this community yew tends to be overwhelmingly dominant and is usually associated with a very sparse shrub and tree layer. Only a few species can survive beneath the dense shade cast by the canopy of mature yew trees. Association with beech *Fagus sylvatica* and holly *Ilex aquifolium* is less common than in mainland Europe.

In Yewbarrow Woods, yew forms extensive stands scattered amongst the main oak birch stand often as an understorey with holly *Ilex aquifolium*, hazel *Corylus avellana* and hawthorn *Crataegus monogyna*. The ground flora can be absent amongst denser stands, but elsewhere is dominated by wavy hair-grass *Deschampsia flexuosa* and creeping soft-grass *Holcus mollis* but species such as foxglove *Digitalis purpurea*, wood sage *Teucrium scorodonia,* bilberry *Vaccinium myrtillus,* wood sorrel *Oxalis acetosella,* heath bedstraw *Galium saxatile,* herb Robert *Geranium robertianum* and bracken *Pteridium aquilinum* are not uncommon.

Qualifying Species:

- Not applicable

References:

ENGLISH NATURE, 2005. *Yewbarrow Woods Special Area of Conservation citation. Version 1.* Available at: http://publications.naturalengland.org.uk/publication/6737728473399296.

NATURAL ENGLAND, 2015. National Character Area: 19 South Cumbria Low Fells. Available at: http://publications.naturalengland.org.uk/publication/4754470.

NATURE CONSERVANCY COUNCIL, 1989. *Yewbarrow Woods Site of Special Scientific Interest citation*. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1002163.pdf.

Table 1: Supplementary Advice for Qualifying Features: H5130. *Juniperus communis* formations on heaths or calcareous grasslands; Juniper on heaths or calcareous grasslands

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 the feature to 2.70 hectares.	There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored. The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements given may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information. The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations. Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis. For this feature, this attribute includes the extent of semi-natural wood-pasture mosaic area; tree'd area; the number of veteran trees (except through natural causes), including dead and living trees. Tree roots (particularly of veteran trees) may extend a considerable distance beyond the boundary of the site. A reduction of woodland/wood-pasture area - whether at the edge or in the middle of a site will reduce the core area where wood-pasture conditions are found - these support significant assemblages of species dependent on woodland conditions (e.g. lichens and bryophytes - being one example)	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. NATURE CONSERVANCY COUNCIL, 1987. *Habitat survey 1:10,000 map*. Available from Natural England on request. Area used on the pSAC Baseline Data Form 2000. This attribute will be periodically monitored as part of Natural England's site condition assessments.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Loss of any woodland area which fragments a site into different parts may interrupt the movement of species between the remaining parts of the woodland, especially those with limited powers of dispersal. The existing area of juniper scrub on this site comprises largely relict populations in places, which demands corresponding targets to Restore the age range, structure and extent of these stands.	
Extent and distribution of the feature	**Spatial distribution of the feature within the site**	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	Distribution includes the spatial pattern or arrangement of this habitat feature, and its component vegetation types, across the site. 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.	
Structure and function (including its typical species)	**Adaptation and resilience**	Maintain the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site	This recognises the increasing likelihood of natural habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary. The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being low, taking into account the sensitivity, fragmentation, topography and management of its habitats. This means that this site is considered to be vulnerable overall but is a lower priority for further assessment and action. Individual species may be more or less vulnerable than their supporting habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.	NATURAL ENGLAND, 2015. *Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England*. Available at: http://publications.naturalengland.org.uk/publication/4954594591375360)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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.	
Structure and function (including its typical species)	**Key structural, influential and/or distinctive species**	Restore the abundance of the species listed below to enable each of them to be a viable component of the H5130 habitat: The constant and preferential plants of the W19 woodland NVC community types which forms a key component of the H5130 feature Juniper *Juniperus communis*	Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include: • **Structural** species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). • **Influential** species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat). • **Site-distinctive** species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. There may be natural fluctuations in the frequency and cover of each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available. The juniper scrub component of this site is not found with a particularly rich ground flora community. It is important to maintain a mixed species scrub element so that juniper does not become over dominant.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its	**Physical structure: ground**	Areas of disturbed and eroding bare ground are limited to a level which is compatible with	Having the ability to provide some areas of exposed bare ground may be required to encourage natural regeneration of juniper plants in order to sustain the feature into the longer-	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)	**disturbance**	maintaining or restoring the regeneration potential of the feature.	term.	
Structure and function (including its typical species)	**Supporting off-site habitat**	Maintain the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the H5130 feature.	The structure and function of the qualifying habitat, including its typical species, may rely upon the continued presence of areas which surround and are outside of the designated site boundary. Changes in surrounding land-use may adversely (directly/indirectly) affect the functioning of the feature and its component species. This supporting habitat may be critical to the typical species of the feature to support their feeding, breeding, roosting, population dynamics ('metapopulations'), pollination or to prevent/reduce/absorb damaging impacts from adjacent land uses e.g. pesticide drift, nutrient enrichment.	
Structure and function (including its typical species)	**Vegetation community composition**	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification type: W19 *Juniperus communis* ssp. *communis – Oxalis acetosella* woodland	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).	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation community transitions**	Maintain expected patterns of natural vegetation zonations/transitions	Transitions/zonations 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 communities. Retaining such transitions can provide further diversity to the habitat feature, and support additional flora and fauna.	
Structure and function (including its	**Vegetation structure - age class**	Restore a population of Juniper comprising plants at different life stages; this should comprise	Juniper regeneration can be infrequent and episodic, resulting in populations with few age classes. Populations with full and wider age range tend to be associated with conditions providing	This attribute will be periodically monitored as part of Natural England's site condition

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)		phases of old growth (>100 years old), building to mature and pioneer/seedling (<5cm girth)	regular opportunities for establishment, such as continual exposure of bare soils on steep slopes. These will be more self-sustaining in the longer term. Juniper on this site tends to be mature to over-mature and the pioneer stage needs to be better represented.	assessments.
Structure and function (including its typical species)	**Vegetation structure: canopy cover**	Restore an appropriate balance between scrub canopy of open field layer, with no more than 33 - 66% of the feature area comprising closed juniper scrub.	Within the areas of this feature dense patches of juniper should make up 33-66% of the area with 'dense patches' defined as where juniper canopy makes up 75% of the vegetation cover.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation: undesirable species**	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread.	Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted succession to a different and less desirable state. Often they may be indicative of a negative trend relating to another aspect of a site's structure and function. These species will vary depending on the nature of the particular feature, and in some cases these species may be natural/acceptable components or even dominants. Undesirable species include: Creeping thistle *Cirsium arvense;* Spear thistle *Cirsium vulgare;* Bracken *Pteridium aquilinum;* Stinging nettle *Urtica dioica; Rhododendron* spp.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Supporting processes (on which the feature relies)	**Air quality**	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it. Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH_3), oxides of nitrogen (NO_x) and sulphur dioxide (SO_2), and critical loads for nutrient nitrogen deposition and acid	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales. Target set to Restore because the current levels of nitrogen and acid deposition (APIS accessed on 30 January 2019) exceed the critical loads for the H5130 feature.	
Supporting processes (on which the feature relies)	**Conservation measures**	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to Restore the structure, functions and supporting processes associated with the feature.	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. 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. For this feature, conservation measures Include providing protection from grazing, cutting or removing non-native tree regeneration, management of deer, weed control and control of grey squirrel. Retention of suitable land use infrastructure / patterns to enable site management is also important e.g. pastoral livestock farming using cattle.	LAKE DISTRICT NATIONAL PARK AUTHORITY, 2013. *Rusland Woodlands Management Plan*. 2013 Revision. NATURAL ENGLAND, 2014. *Yewbarrow Woods Site Improvement Plan. Version 1.0*. Available at: http://publications.naturalengland.org.uk/publication/6032706127265792?category=6329101765836800
Supporting processes (on which the feature relies)	**Functional connectivity with wider landscape**	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site.	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,	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site. These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

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

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	**Extent of the feature within the site**	Maintain the total extent of the feature at 90.16 hectares.	See the 'Supporting and Explanatory Notes' for this attribute above in Table 1. For this feature tree roots (particularly of veteran trees) can extend a considerable distance beyond the boundary of the site - they can be impacted by soil compaction (such as caused by vehicles or construction works); agricultural operations or other soil disturbance (like trenches); and agro chemicals or other chemicals which get into the soil. Any loss of woodland area - whether at the edge or in the middle of a site will reduce the core woodland area where woodland conditions are found - these support significant assemblages of species dependent on woodland conditions (e.g. lichens and bryophytes - being one example). Loss of any woodland area which fragments a site into different parts will clearly disturb the movement of species between the remaining parts of the woodland.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. NATURE CONSERVANCY COUNCIL, 1987. *Habitat survey 1:10,000 map*. Available from Natural England on request. Area used on the pSAC Baseline Data Form 2000. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Extent and distribution of the feature	**Spatial distribution of the feature within the site**	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. 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,	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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.	
Structure and function (including its typical species)	**Vegetation community composition**	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification types: W11 *Quercus petraea – Betula pubescens – Oxalis acetosella* woodland. W17 *Quercus petraea – Betula pubescens – Dicranum majus* woodland.	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).	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation structure - canopy cover**	Maintain an appropriate tree canopy cover across the feature, which will typically be between 30-90% of the site	Canopy cover is the overall proportion of vegetative cover consisting of any woody layer ranging from established regeneration to mature and veteran stages. Woodland canopy density and structure is important because it affects ecosystem function and in particular microclimate, litterfall, soil moisture, nutrient turnover and shading; this in turn influences the composition of plants and animals in lower vegetation layers and soil. Open canopies with just scattered trees will have less of a woodland character and reduced diversity of woodland-dependent species (although they may be still be important as a form of woodland-pasture). Completely closed canopies across the whole woodland are not ideal either however, as they cast heavier shade and support fewer species associated with edges, glades and open grown trees, and have little space where tree regeneration could occur. In general, the woodland canopy of this feature should provide a core of woodland interior conditions with some open and edge habitat as well.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function	**Vegetation structure -**	Maintain areas of permanent/temporary open	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and	ENGLISH NATURE, 2005. *Definition of Favourable*

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(including its typical species)	**open space**	space within the woodland feature, typically to cover approximately 10% of area	dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. Having some open, sunlit and largely tree-less areas as part of the woodland community is often important to facilitate natural tree and shrub regeneration and also to provide supporting habitat for specialist woodland invertebrates, birds, vascular and lower plants. Such open space can be permanent or temporary and may consist of managed grazed areas, linear rides and glades, or naturally-produced gaps caused by disturbance events such as windthrow/fire/tree falling over/snow damage.	*Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation structure - old growth**	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 20% of the feature at any one time) and the assemblages of veteran and ancient trees (typically >10 trees per hectare).	Good woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. For this habitat type, old or over-mature elements of the woodland are particularly characteristic and important features, and their continuity should be a priority.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation structure - dead wood**	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m^3 per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, and >10 standing dead trees per hectare	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context.	This attribute will be periodically monitored as part of Natural England's site condition assessments.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Dead and actively decaying wood, either as part of a standing tree or as a fallen tree on the woodland floor, is an important component of woodland ecosystems, and supports a range of specialist invertebrates, fungi, lichens and bryophytes, and associated hole-nesting birds and roosting bats, all of which may be very typical of the feature.	
Structure and function (including its typical species)	**Vegetation structure - age class distribution**	Maintain at least 3 age classes (pole stage / medium / mature) spread across the average life expectancy of the commonest trees.	A distribution of size and age classes of the major site-native tree and shrub species that indicate the woodland will continue in perpetuity, and will provide a variety of the woodland habitats and niches expected for this type of woodland at the site in question.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation structure - shrub layer**	Maintain an understorey with shrubs covering 10% of the stand area (this will vary with light levels and site objectives).	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. The understorey component typically has a low cover on this site.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation structure - woodland edge**	Maintain a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.	Woodland edge is defined as being the transitional zone between the forest feature and adjacent but different habitat types - the best woodland edges will have a varied structure in terms of height and cover. Many typical forest species make regular use of the edge habitats for feeding due to higher herb layer productivity and larger invertebrate populations. Grasslands / arable fields managed with high doses of agro-chemicals could potentially not allow this gradation of woodland edge and could have other impacts on the integrity of the site (pollution/ nutrient enrichment *etc*).	
Structure and function (including its typical species)	**Adaptation and resilience**	Maintain the resilience of the feature by ensuring a diversity (at least 2 species) of site-native trees (e.g. sessile oak, birch, holly) across the site.	See the 'Supporting and Explanatory Notes' for this attribute above in Table 1.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	**Browsing and grazing by herbivores**	Restore browsing to a (low) level that allows well developed understorey with no obvious browse line, & lush ground vegetation with some grazing sensitive species evident (bramble, ivy, *etc*), and tree seedlings and sapling common in gaps.	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. Target set to Restore because deer numbers need to be managed within the SAC, as evidenced by monitoring visits carried out as part of site condition assessment.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. LAKE DISTRICT NATIONAL PARK AUTHORITY, 2013. *Rusland Woodlands Management Plan*. 2013 Revision. NATURAL ENGLAND, 2014. *Yewbarrow Woods Site Improvement Plan. Version 1.0*. Available at: http://publications.naturalengland.org.uk/publication/6032706127265792?category=6329101765836800 This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Regeneration potential**	Restore the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate.	The regeneration potential of the woodland feature must be maintained if the wood is to be sustained and survive, both in terms of quantity of regeneration and in terms of appropriate species. This will Include regeneration of the trees and shrubs from saplings or suckers, regrowth from coppice stools or pollards, and where appropriate planting. Browsing and grazing levels must permit regeneration at least in intervals of 5 years every 20. The density of regeneration considered sufficient is less in parkland sites than in high forest. Regeneration from pollarding of veteran trees should be included where this is happening. Target set to Restore because deer numbers need to be managed within the SAC, as evidenced by monitoring visits carried out as part of site condition assessment.	This attribute will be periodically monitored as part of Natural England's site condition assessments.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	**Tree and shrub species composition**	Restore a canopy and under-storey of which 95% is composed of site native trees and shrubs Oak *Quercus* spp.; Birch *Betula* spp.; Ash *Fraxinus excelsior*; Alder *Alnus glutinosa*; Yew *Taxus baccata*; Holly *Ilex aquifolium*; Hazel *Corylus avellana*; Hawthorn *Crataegus monogyna*; Wych elm *Ulmus glabra*; Small-leaved lime *Tilia cordata*; Juniper *Juniperus communis*.	Native trees and shrubs in general support a greater diversity of associated species than non-native species, especially amongst groups of invertebrates which depend directly on trees for food and shelter. There are many plants and animals which use or co-exist with non-native trees, but many rare and threatened woodland species are specialists adapted to one or a few native trees or shrub species (birches, willows and oaks, are examples of trees that host many specialist insect species). It is recognised that there are issues relating to canopy composition and regeneration in the understorey particularly in the area around the Rusland Beeches. A 25m zone of beech along the lower western boundary along the roadside, an area known as the Rusland Beeches, is permitted to retain this feature and is important habitat for bats. Selective ringbarking of mature beech beyond this zone and removal of beech regeneration is being undertaken. Whilst the canopy trees are allowed to remain under the current management plan, regeneration of beech as an understorey component will not be tolerated at a density greater than rare.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. LAKE DISTRICT NATIONAL PARK AUTHORITY, 2013. *Rusland Woodlands Management Plan*. 2013 Revision. NATURAL ENGLAND, 2014. *Yewbarrow Woods Site Improvement Plan. Version 1.0*. Available at: http://publications.naturalengland.org.uk/publication/6032706127265792?category=6329101765836800 This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Key structural, influential and/or distinctive species**	Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the H91A0 habitat: The constant and preferential plants of the W11 and W17 woodland NVC community types which forms a key component of the H91A0 feature.	See the 'Supporting and Explanatory Notes' for this attribute above in Table 1.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request.
Structure and function (including its typical species)	**Invasive, non-native and/or introduced species**	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the feature	Invasive or introduced non-native species are a serious potential threat to the biodiversity of native and ancient woods, because they are able to exclude, damage or suppress the growth of native tree, shrub and ground species (and their associated typical species), reduce structural diversity and	NATURAL ENGLAND, 2014. *Yewbarrow Woods Site Improvement Plan. Version 1.0*. Available at: http://publications.naturalengland.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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 (e.g. use of broad spectrum pesticides). Such species can include Rhododendrons, snowberry, Japanese knotweed, giant hogweed and Himalayan balsam, for example. Similarly, this would include pheasants, rabbits and non-native invertebrate 'pest' species. Beech, sycamore and bracken have been identified as species presenting problems on this site.	org.uk/publication/6032706127265792?category=6329101765836800
Structure and function (including its typical species)	**Soils, substrate and nutrient cycling**	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the habitat.	Soil is the foundation of basic ecosystem function and a vital part of the natural environment. Its properties strongly influence the colonisation, growth and distribution of those plant species which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature.	
Structure and function (including its typical species)	**Root zones of ancient trees**	Maintain the soil structure within and around the root zones of the mature and ancient tree cohort in an un-compacted condition.	The management of land within and around forest habitats which are characterised by ancient trees can be crucial to their individual welfare and long-term continuity, and the landscape they are part of can be just as or even more important. The condition of the soil surrounding such trees will affect their roots, associated mycorrhizal fungi and growth. Plants have difficulty in compacted soil because the mineral grains are pressed together, leaving little space for air and water which are essential for root growth. Unless carefully managed, activities such as construction, forestry management and trampling by grazing livestock and human feet during recreational activity may all contribute to excessive soil compaction around ancient trees.	
Supporting processes (on which the feature relies)	**Air quality**	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or	See the 'Supporting and Explanatory Notes' for this attribute above in Table 1. Target set to Restore because the current levels of nitrogen	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	and acid deposition (APIS accessed on 30 January 2019) exceed the critical loads for the H91A0 feature.	Pollution Information System (www.apis.ac.uk).
Supporting processes (on which the feature relies)	**Hydrology**	At a site, unit and/or catchment level as necessary, Maintain natural hydrological processes to provide the conditions necessary to sustain the feature within the site.	Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts. This is included as disruption / damage to hydrological processes could be caused by activities at some distance from the site boundary. E.g. through extraction of ground or surface waters; diverting or daming river channels; pollution of water source; channel alignment that disrupts natural geomorphological processes; tunnelling *etc*.	
Supporting processes (on which the feature relies)	**Illumination**	Ensure artificial light is maintained to a level which is unlikely to affect natural phenological cycles and processes to the detriment of the feature and its typical species at this site.	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. 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. 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: **'Canopy cover'** attribute **-** percentage range adjusted to match target in Definition of Favourable Condition for the underlying SSSI. **'Understorey' attribute** - target reduced to reflect typically low levels expected on upland sites in Cumbria.				

Table 3: Supplementary Advice for Qualifying Features: H91J0. *Taxus baccata* woods of the British Isles; Yew-dominated woodland

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	**Extent of the feature within the site**	Maintain the total extent of the feature at 4.50 hectares.	See the 'Supporting and Explanatory Notes' for this attribute above in Table 1. For this feature, this attribute includes the extent of semi-natural wood-pasture mosaic area; tree'd area; the number of veteran trees (except through natural causes), including dead and living trees. Tree roots (particularly of veteran trees) may extend a considerable distance beyond the boundary of the site. A reduction of woodland/wood-pasture area - whether at the edge or in the middle of a site will reduce the core area where wood-pasture conditions are found - these support significant assemblages of species dependent on woodland conditions (e.g. lichens and bryophytes - being one example) Loss of any woodland area which fragments a site into different parts may interrupt the movement of species between the remaining parts of the woodland, especially those with limited powers of dispersal.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. NATURE CONSERVANCY COUNCIL, 1987. *Habitat survey 1:10,000 map*. Available from Natural England on request. Area used on the pSAC Baseline Data Form 2000. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Extent and distribution of the feature	**Spatial distribution of the feature within the site**	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. 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,	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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.	
Structure and function (including its typical species)	**Vegetation community composition**	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification type: W13 *Taxus baccata* woodland	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).	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation structure - canopy cover**	Maintain an appropriate tree canopy cover across the feature, which will typically be between 30-90% of the site.	Canopy cover is the overall proportion of vegetative cover consisting of any woody layer ranging from established regeneration to mature and veteran stages. Woodland canopy density and structure is important because it affects ecosystem function and in particular microclimate, litterfall, soil moisture, nutrient turnover and shading; this in turn influences the composition of plants and animals in lower vegetation layers and soil. Open canopies with just scattered trees will have less of a woodland character and reduced diversity of woodland-dependent species (although they may be still be important as a form of woodland-pasture). Completely closed canopies across the whole woodland are not ideal either however, as they cast heavier shade and support fewer species associated with edges, glades and open grown trees, and have little space where tree regeneration could occur. In general, the woodland canopy of this feature should provide a core of woodland interior conditions with some open and edge habitat as well.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Yew is present within the main woodland component of the site, however, Yewbarrow Wood is noted for its extensive stands of yew as the main canopy tree. Targets are set for the woodland as a whole.	
Structure and function (including its typical species)	**Vegetation structure - open space**	Maintain areas of permanent/temporary open space within the woodland feature, typically to cover approximately 10% of area	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. Having some open, sunlit and largely tree-less areas as part of the woodland community is often important to facilitate natural tree and shrub regeneration and also to provide supporting habitat for specialist woodland invertebrates, birds, vascular and lower plants. Such open space can be permanent or temporary and may consist of managed grazed areas, linear rides and glades, or naturally-produced gaps caused by disturbance events such as windthrow/fire/tree falling over/snow damage.	ENGLISH NATURE, 2005. *Definition of Favourable Condition – Yewbarrow Woods SSSI*. Available from Natural England on request. This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation structure - old growth**	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 50% of the feature at any one time) and the assemblages of veteran and ancient trees (typically >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. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. For this habitat type, old or over-mature elements of the woodland are particularly characteristic and important features, and their continuity should be a priority.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its	**Vegetation structure - dead wood**	Maintain the continuity and abundance of standing or fallen dead and decaying wood,	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	This attribute will be periodically monitored as part of Natural England's site condition

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)		typically between 30 - 50 m^3 per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare	functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context. Dead and actively decaying wood, either as part of a standing tree or as a fallen tree on the woodland floor, is an important component of woodland ecosystems, and supports a range of specialist invertebrates, fungi, lichens and bryophytes, and associated hole-nesting birds and roosting bats, all of which may be very typical of the feature.	assessments.
Structure and function (including its typical species)	**Vegetation structure - age class distribution**	Maintain at least 2 age classes (e.g. pole stage, mature, veteran) spread across the average life expectancy of the trees - which can be hundreds of years.	A distribution of size and age classes of the major site-native tree and shrub species that indicate the woodland will continue in perpetuity, and will provide a variety of the woodland habitats and niches expected for this type of woodland at the site in question.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Vegetation structure - shrub layer**	Maintain an understorey of shrubs that is sparse under the yew canopy, with occasionally present (e.g. holly, hawthorn, elder, box) (this will vary with light levels and site objectives)	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context.	
Structure and function (including its typical species)	**Vegetation structure - Woodland edge (graduated edge; buffered; mosaics with other habitats)**	Maintain a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.	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. Woodland edge is defined as being the transitional zone between the forest feature and adjacent but different habitat types - the best woodland edges will have a varied structure in terms of height and cover. Many typical forest species make regular use of the edge habitats for feeding due to higher herb layer productivity and larger invertebrate populations.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	**Adaptation and resilience**	Maintain the resilience of the feature by ensuring a diversity of site-native tree species; although yew dominates, this can be provided by a scattering of one or more of whitebeam, ash, beech, sycamore and oak.	See the 'Supporting and Explanatory Notes' for this attribute above in Table 1.	
Structure and function (including its typical species)	**Regeneration potential**	Restore the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate.	The regeneration potential of the woodland feature must be maintained if the wood is to be sustained and survive, both in terms of quantity of regeneration and in terms of appropriate species. This will Include regeneration of the trees and shrubs from saplings or suckers, regrowth from coppice stools or pollards, and where appropriate planting. Browsing and grazing levels must permit regeneration at least in intervals of 5 years every 20. The density of regeneration considered sufficient is less in parkland sites than in high forest. Regeneration from pollarding of veteran trees should be included where this is happening. It is difficult to set targets for minimum levels of regeneration for yew on this site. The yew component is mixed within the general woodland complex and is expected to benefit from a landscape scale approach to deer management, and livestock control on the whole site.	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Tree and shrub species composition**	Maintain a canopy and under-storey of which 95% is composed of site native trees and shrubs. Yew *Taxus baccata*; Holly *Ilex aquifolium*; Birch *Betula spp*; Hawthorn *Crataegus monogyna*; Juniper *Juniperus communis*.	Native trees and shrubs in general support a greater diversity of associated species than non-native species, especially amongst groups of invertebrates which depend directly on trees for food and shelter. There are many plants and animals which use or co-exist with non-native trees, but many rare and threatened woodland species are specialists adapted to one or a few native trees or shrub species (birches, willows and oaks, are examples of trees that host many specialist insect species).	This attribute will be periodically monitored as part of Natural England's site condition assessments.
Structure and function (including its typical species)	**Key structural, influential and/or distinctive species**	Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the H91J0 habitat:	See the 'Supporting and Explanatory Notes' for this attribute above in Table 1. There is an uncorroborated record of Lancashire whitebeam *Sorbus lancastriensis* on this site.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		The constant and preferential plants of the W13 woodland NVC community types which forms a key component of the H91J0 feature. Lancashire whitebeam *Sorbus lancastriensis.*		
Structure and function (including its typical species)	**Invasive, non-native and/or introduced species**	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the feature	Invasive or introduced non-native species are a serious potential threat to the biodiversity of native and ancient woods, because they are able to exclude, damage or suppress the growth of native tree, shrub and ground species (and their associated typical species), reduce structural diversity and prevent the natural regeneration of characteristic site-native species. Once established, the measures to control such species may also impact negatively on the features of interest (e.g. use of broad spectrum pesticides). Such species can include Rhododendrons, snowberry, Japanese knotweed, giant hogweed and Himalayan balsam, for example. Similarly, this would include pheasants, rabbits and non-native invertebrate 'pest' species.	This attribute will be periodically monitored as part of Natural England's site condition assessments. LAKE DISTRICT NATIONAL PARK AUTHORITY, 2013. *Rusland Woodlands Management Plan*. 2013 Revision.
Structure and function (including its typical species)	**Soils, substrate and nutrient cycling**	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the habitat.	Soil is the foundation of basic ecosystem function and a vital part of the natural environment. Its properties strongly influence the colonisation, growth and distribution of those plant species which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature.	
Supporting processes (on which the feature relies)	**Functional connectivity with wider landscape**	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			features of the site. These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.	
Supporting processes (on which the feature relies)	**Air quality**	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See the 'Supporting and Explanatory Notes' for this attribute above in Table 1. Target set to Restore because the current levels of nitrogen and acid deposition (APIS accessed on 30 January 2019) exceed the critical loads for the H91J0 feature.	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Supporting processes (on which the feature relies)	**Hydrology**	At a site, unit and/or catchment level as necessary, Maintain natural hydrological processes to provide the conditions necessary to sustain the feature within the site.	Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts. This attribute and target are included because disruption/ damage to hydrological processes could be caused by activities at some distance from the site boundary. E.g. through extraction of ground or surface waters; diverting or daming river channels; pollution of water source; channel alignment that disrupts natural geomorphological processes; tunnelling *etc*.	
Supporting processes (on which the feature relies)	**Illumination**	Ensure artificial light is maintained at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the	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. For example, light pollution (from direct glare, chronically increased illumination and/or temporary,	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		feature and its typical species at this site.	unexpected fluctuations in lighting) can affect animal navigation, competitive interactions, predator-prey relations, and animal physiology. 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: N/A				