



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

**Hartslock Wood Special Area of Conservation (SAC)
Site code: UK0030164**



The yew woodland component of Hartlock Wood SAC as viewed from across the River Thames © Philip Halling

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About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Hartslock Wood 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	Hartslock Wood Special Area of Conservation (SAC)
Location	Oxfordshire
Site Maps	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	1 st April 2005
Qualifying Features	See section below
Designation Area	34.16 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)	Hartslock SSSI
Relationship with other European or International Site designations	n/a
Other information	Natura 2000 Standard Data Form for Hartslock Wood SAC

Site background and geography

The steep slopes of this site above the River Thames on the chalk of the [Chilterns National Character Area](#) (NCA) comprise a mosaic of chalk grassland, chalk scrub and broadleaved woodland, and one of the few examples of ancient yew *Taxus baccata* woodland in the Chilterns.

The wood contains short bushy yews which have grown up under beech and which are heterogeneous in age with gaps in the canopy caused by wind-throw and root slippage. Natural regeneration of yews continues to take place. The heavily shaded field layer is poorly developed beneath the yew and beech, but becomes quite rich under more open canopy and contains a number of uncommon species such as southern wood-rush *Luzula forsteri*, wood barley *Hordelymus europaeus* and narrow-lipped helleborine *Epipactis leptochila*. A small population of the scarce summer snowflake *Leucojum aestivum* occurs in tall herb fen vegetation by the Thames.

The chalk grassland consists mainly of close-grazed, species-rich turf dominated by sheep's-fescue *Festuca ovina* with areas of taller, coarser grass dominated by upright brome *Bromopsis erecta*, downy oat-grass *Helictotrichon pubescens* and tor-grass *Brachypodium pinnatum*. The site supports one of only three UK populations of monkey orchid *Orchis simia*.

The insect fauna consists of many species that are generally uncommon in Oxfordshire including populations of chalkhill, adonis and small blue butterflies, the rufous grasshopper *Gomphocerippus rufus* and several uncommon moths, beetles and true flies.

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:

- **H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) ('important orchid sites'*)**

These grasslands are generally found on thin, well-drained, lime-rich soils associated with underlying chalk and limestone geology. In the UK, they occur predominantly at low to moderate altitudes in England and Wales, extending locally into upland areas in northern England, Scotland and Northern Ireland. Most of these calcareous grasslands are maintained by grazing. A large number of rare plants are associated with this habitat and its associated invertebrate fauna can also be noteworthy.

The chalk grassland at this SAC mostly consists of a mosaic of shorter-turf NVC type CG2 *Festuca ovina*–*Avenula pratensis* grassland and taller CG3 *Bromus erectus* grassland (Rodwell, 1992).

This SAC is also distinctive in hosting the priority habitat type "orchid rich sites". This priority habitat type comprises calcareous grasslands which contain either a rich suite of orchid species, important populations of at least one nationally uncommon orchid species or one or several orchid species considered to be rare, very rare or exceptional in the UK. This SAC supports one of only three UK populations of monkey orchid *Orchis simia*, a nationally rare species.

- **H91J0 *Taxus baccata* woods of the British Isles ('yew-dominated woodland'*)**

A priority Annex I habitat feature, H91J0 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 corresponds to NVC type W13 *Taxus baccata* woodland (Rodwell, 1991). 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, such as dog's mercury *Mercurialis perennis*, 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. Stands of yew woodland frequently form mosaics with scrub and grassland, including H6210 semi-natural dry grasslands and scrubland facies on calcareous substrates.

The bulk of this site lies on a steep slope above the River Thames. Storms and landslips have resulted in a diverse age-structure for the yew population. Open patches show a rich flora including local species such as southern wood-rush *Luzula forsteri*, wood barley *Hordelymus europaeus* and narrow-lipped helleborine *Epipactis leptochila*.

Qualifying Species:

Not applicable.

References

- RODWELL, J.S. (ed.) 1991. *British Plant Communities. Volume 1. Woodlands and scrub*. Cambridge University Press.
- RODWELL, J.S. (ed.) 1992. *British Plant Communities. Volume 3 – Grasslands and montane communities*. Cambridge University Press.

Table 1: 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 H91J0 feature at 27.33 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. 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.</p> <p>Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations.</p>	Figures for habitat extent are based upon baseline estimates calculated at the time of SAC classification.
	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H91J0 feature, including where applicable its component vegetation types, across the site	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat.</p> <p>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>	Natural England has mapping data showing the extent and distribution of the woodland feature.
Structure and function (including its typical species)	Vegetation community composition	Ensure the component vegetation communities of the H91J0 feature are referable to and characterised by the following National Vegetation Classification type;	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	This attribute is monitored as part of Natural England's site condition assessments.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		W13 <i>Taxus baccata</i> woodland	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).	Details of the latest condition assessment of the site are available here .
Structure and function (including its typical species)	Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the H91J0 feature, which will typically be between 75-90% 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, litter-fall, 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 scattered trees will have less of a woodland character and reduced diversity of woodland-dependent species. Completely closed canopies across the whole woodland are not ideal either, as heavily shaded areas will 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.	The latest condition assessment of the SSSI which underpins this SAC
	Vegetation structure - open space	Maintain areas of permanent/temporary open space within the H91J0 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. 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 either 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.	The latest condition assessment of the SSSI which underpins this SAC
	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).	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. Whilst it is recognised that the majority of the yew trees at Hartslock are relatively even-aged, it is desirable to seek the retention of a proportion of the woodland as undisturbed stands with trees allowed to grow to over-maturity and senescence.	The latest condition assessment of the SSSI which underpins this SAC

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
	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 >30cm 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. 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.	The latest condition assessment of the SSSI which underpins this SAC
Structure and function (including its typical species)	Vegetation structure - age class distribution	Maintain at least 2 age classes (eg 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.	The latest condition assessment of the SSSI which underpins this SAC
	Vegetation structure - shrub layer	Maintain an understorey of shrubs (which may be typically sparse) under the yew canopy.	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 shrub layer in yew woodland is typically sparse but may include, amongst others, scattered elder, ash, hawthorn and juniper.	The latest condition assessment of the SSSI which underpins this SAC
	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.	The latest condition assessment of the SSSI which underpins this SAC
	Adaptation and resilience	Maintain the resilience of the H91J0 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 explanatory notes for this attribute in table 2 below.	NATURAL ENGLAND (2015). Climate Change Theme Plan and supporting NBCCV Assessments for

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				SACs and SPAs http://publications.naturalengland.org.uk/publication/4954594591375360
	Regeneration potential	Maintain the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate	The regeneration potential of the woodland feature must be maintained if the wood is to be sustained and survive, both in terms of quantity of regeneration and in terms of appropriate species. This will include regeneration of the trees and shrubs from saplings or suckers, regrowth from coppice stools or pollards, and where appropriate planting. Browsing and grazing levels must permit regeneration at least in intervals of 5 years every 20. The density of regeneration considered sufficient is less in parkland sites than in high forest. Regeneration from pollarding of veteran trees should be included where this is happening.	The latest condition assessment of the SSSI which underpins this SAC
Structure and function (including its typical species)	Tree and shrub species composition	Maintain a canopy and understorey of which 95% is composed of site-native trees and shrubs such as yew <i>Taxus baccata</i> , along with ash <i>Fraxinus excelsior</i> , beech <i>Fagus sylvatica</i> , elder <i>Sambucus nigra</i> , wild cherry <i>Prunus avium</i> , hazel <i>Corylus avellana</i> , hawthorn <i>Crataegus monogyna</i> , blackthorn <i>Prunus spinosa</i> and/or dogwood <i>Cornus sanguinea</i> .	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).	JNCC (2009) NVC floristic tables. Accessed via the JNCC website: http://jncc.defra.gov.uk/page-4265 The latest condition assessment of the SSSI which underpins this SAC
	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 Annex 1 habitat;	See notes for this attribute in Table 2 below	The latest condition assessment of the SSSI which underpins this

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p>Woody species: <i>Taxus baccata</i>, <i>Fraxinus excelsior</i>, <i>Fagus sylvatica</i>, <i>Sambucus nigra</i>, <i>Prunus avium</i>, <i>Corylus avellana</i>, <i>Acer campestre</i>, <i>Crataegus monogyna</i>, <i>Prunus spinosa</i>, <i>Cornus sanguinea</i></p> <p>Herbaceous species: <i>Luzula forsteri</i>, <i>Hordelymus europaeus</i>, <i>Epipactis leptochila</i>, <i>Asplenium scolopendrium</i>, <i>Dryopteris filix-mas</i>, <i>Mercurialis perennis</i>, <i>Eupatorium cannabinum</i>, <i>Daphne laureola</i>, <i>Atropa belladonna</i>, <i>Stachys sylvatica</i>, <i>Euphorbia amygdaloides</i>, <i>Brachypodium sylvaticum</i>, <i>Leucojum aestivum</i>, <i>Hordelymus europaeus</i>, <i>Primula vulgaris</i>, <i>Viola riviniana</i> and <i>Iris foetidissima</i></p>		SAC
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 H91J0 feature	<p>Invasive or introduced non-native species can be a serious potential threat to the biodiversity of native and ancient woods, because they are able to exclude, damage or suppress the growth of native tree, shrub and ground species (and their associated typical species), reduce structural diversity and prevent the natural regeneration of characteristic site-native species.</p> <p>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 box, snowberry, Japanese knotweed, giant hogweed and Himalayan balsam, for example. Similarly, this would include pheasants and non-native invertebrate 'pest' species.</p>	The latest condition assessment of the SSSI which underpins this SAC
	Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total	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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H91J0 habitat.	<p>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>	
Supporting processes (on which the feature relies)	Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	<p>This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives.</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>In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.</p>	
Supporting processes (on which the feature relies)	Air quality	Restore the concentrations and deposition of air pollutants to 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 the explanatory notes for this attribute in table 2 below.</p> <p>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.</p> <p>The critical values for atmospheric nitrogen and acidity are currently being exceeded (APIS accessed November 2016)</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 (www.apis.ac.uk).</p> <p>NATURAL ENGLAND, 2015. Site Improvement</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				Plan: Hartslock Wood (SIP100)
	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: section on hydrology removed as not applicable to the site – all on a steep chalk slope.				

Table 2: Supplementary Advice for Qualifying Features: H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) (important orchid sites); Dry grasslands and scrublands on chalk or limestone (important orchid sites) *

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 H6210 feature at 4.44 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. 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>Figures for habitat extent are based upon baseline estimates calculated at the time of SAC classification.</p> <p>STEVEN, G. & BIRON, E.M. (1992) Oxfordshire Chalk Grassland Botanical Survey and Evaluation 1991/1992</p>
	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H6210 feature, including where applicable its component vegetation types, across the site	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat.</p> <p>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>	<p>Natural England holds baseline habitat mapping data showing the extent and distribution of species-rich grassland on the site.</p> <p>STEVEN, G. & BIRON, E.M. (1992) Oxfordshire Chalk Grassland Botanical Survey and Evaluation 1991/1992</p>
Structure and function (including its typical	Vegetation community composition	Ensure the component vegetation communities of the H6210 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	This attribute is monitored as part of Natural England's site condition

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
species)		<p>following National Vegetation Classification types:</p> <p>CG2 <i>Festuca ovina</i>–<i>Avenula pratensis</i> grassland CG3 <i>Bromus erectus</i> grassland</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).</p>	<p>assessments. Details of the latest condition assessment of the site are available here.</p>
Structure and function (including its typical species)	Vegetation: proportion of herbs (including <i>Carex</i> spp)	<p>Maintain a high proportion of herbaceous species (typically) within the range 40%-90%</p>	<p>A high cover of characteristic herbs, including sedges (<i>Carex</i> species), is typical of the structure of this habitat type.</p>	<p>The latest condition assessment of the SSSI which underpins this SAC</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 Annex 1 habitat:</p> <p>Constant and preferential higher plants associated with the CG2 and CG3 communities at this site including; <i>Campanula glomerata</i>, <i>Carex</i> spp <i>Cirsium acaule</i>, <i>Clinopodium vulgare</i>, <i>Euphrasia officinalis</i> <i>Festuca ovina</i>, <i>Helictotrichon (Avenula) pratensis</i>, <i>Koeleria macrantha</i>, <i>Knautia arvensis</i> <i>Leontodon hispidus</i>, <i>Linum catharticum</i>, <i>Lotus corniculatus</i> <i>Medicago lupulina</i>, <i>Origanum vulgare</i>, <i>Primula veris</i>, <i>Sanguisorba minor</i>, <i>Scabiosa columbaria</i>, <i>Thymus praecox</i></p> <p>Populations of:</p> <p>Bastard toad-flax <i>Thesium humifusum</i></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"> – <i>Structural</i> 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'). – <i>Influential</i> 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). – <i>Site-distinctive</i> 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>STEVEN, G. & BIRON, E.M. (1992) Oxfordshire Chalk Grassland Botanical Survey and Evaluation 1991/1992</p> <p>JNCC (2009) NVC floristic tables. Accessed via the JNCC website: http://jncc.defra.gov.uk/page-4265</p> <p>The latest condition assessment of the SSSI which underpins this SAC</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p>Downy-fruited sedge <i>Carex tomentosa</i> Monkey Orchid <i>Orchis simia</i></p> <p>Assemblage of Invertebrates, including the butterflies brown argus <i>Aricia agestis</i>, green hairstreak <i>Callophrys rubi</i>, small heath <i>Coenonympha pamphilus</i>, chalkhill blue <i>Polyommatus coridon</i> and grizzled skipper <i>Pyrgus malvae</i></p>		
Structure and function (including its typical species)	Vegetation: undesirable species	<p>Maintain the frequency and 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: <i>Cirsium arvense</i>, <i>Cirsium vulgare</i>, <i>Rumex crispus</i>, <i>Rumex obtusifolius</i>, <i>Urtica dioica</i>, <i>Senecio jacobaea</i>, <i>Arrhenatherum elatius</i>, <i>Brachypodium sylvaticum</i>, <i>Brachypodium pinnatum</i> and all tree and shrub species including <i>Rosa</i> spp, and <i>Rubus</i> spp.</p>	<p>There will be a range of undesirable or uncharacteristic species which, if allowed to colonise and spread, are likely to have an adverse effect on the feature's structure and function, including its more desirable typical species. These may include invasive non-natives such as <i>Cotoneaster</i> spp, or coarse and aggressive native species which may uncharacteristically dominate the composition of the feature.</p> <p>In areas of grassland which support a population of Monkey Orchid, a higher cover of scrub and taller sward conditions is likely to be acceptable.</p>	The latest condition assessment of the SSSI which underpins this SAC
	Vegetation community transitions	<p>Maintain the pattern of natural vegetation zonations/transitions</p> <p>Maintain a graduated woodland edge with the neighbouring H91J0 <i>Taxus baccata</i> woodland</p>	<p>Transitions/zonations between adjacent but different vegetation communities are usually related to naturally-occurring changes in soil, aspect or slope.</p> <p>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.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Small scale temporary loss of grassland extent as a result of scrub/woodland encroachment may be acceptable if measures are in place to control the encroachment.	
	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 H6210 habitat.	Soil is the foundation of basic ecosystem function and 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 off-site habitat	Maintain and, where necessary, restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the feature including the neighbouring SSSI unit 4, which is not included in the SAC designation.	<p>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.</p> <p>This supporting habitat may be critical to the typical species of the feature to support their feeding, breeding, roosting, population dynamics ('meta-populations'), pollination or to prevent/reduce/absorb damaging impacts from adjacent land uses e.g. pesticide drift, nutrient enrichment.</p>	The SSSI units are monitored as part of Natural England's site condition assessments. Details of the latest condition assessment of the site are available here .
	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 importance at this site to maintain or restore functional connectivity to the 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. In most cases increasing actual and functional landscape-scale connectivity would be beneficial.</p> <p>Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.</p>	

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 H6210 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site	<p>This recognises the increasing likelihood of natural habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in precipitation and temperature, which are likely to affect the extent, distribution, composition and functioning of a feature within a site.</p> <p>The vulnerability and response of features to such changes will vary. The feature at this SAC has been assessed as being of <i>low</i> vulnerability to climate change, taking into account the sensitivity, fragmentation, topography and management of its habitats. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.</p>	NATURAL ENGLAND, 2015. Climate Change Theme Plan and National Biodiversity Climate Change Vulnerability Assessments (NBCCVAs). Available at http://publications.naturalengland.org.uk/publication/4954594591375360
	Supporting processes (on which the feature relies)	Air quality	Maintain the concentrations and deposition of air pollutants 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. Exceedance of critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.</p> <p>Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH₃), oxides of nitrogen (NO_x) and sulphur dioxide (SO₂), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. 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>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>
	Conservation measures	Maintain the management measures (either within and/or outside the site boundary as	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	NATURAL ENGLAND, 2015. Site Improvement

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the H6210 feature	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.	Plan: Hartslock Wood (SIP100) ENGLISH NATURE, 2005. Views about the Management (VAM) of Hartslock SSSI
Version Control				
Advice last updated: Not applicable				
Variations from national feature-framework of integrity-guidance: Not applicable				

