



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

**North Downs Woodlands Special Area of Conservation (SAC)  
Site Code: UK0030225**



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**Date of Publication:** 11 February 2019

## **About this document**

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to North Downs Woodlands 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](mailto:HDIRConservationObjectivesNE@naturalengland.org.uk)**

## About this site

### European Site information

<b>Name of European Site</b>	North Downs Woodlands Special Area of Conservation (SAC)
<b>Location</b>	Kent
<b>Site Map</b>	The designated boundary of this site can be viewed <a href="#">here</a> on the MAGIC website
<b>Designation Date</b>	April 2005
<b>Qualifying Features</b>	See below
<b>Designation Area</b>	288.58 Hectares
<b>Designation Changes</b>	None
<b>Feature Condition Status</b>	Details of the feature condition assessments made at this site can be found using Natural England's <a href="#">Designated Sites System</a>
<b>Names of component Sites of Special Scientific Interest (SSSIs)</b>	Halling to Trottiscliffe Escarpment SSSI Wouldham to Detling Escarpment SSSI
<b>Relationship with other European or International Site designations</b>	None

### Site background and geography

North Downs Woodlands SAC is situated in south-east England within the [North Downs National Character Area](#), which forms a chain of chalk hills extending from the Hog's Back in Surrey and ending dramatically at the internationally renowned White Cliffs of Dover.

The North Downs Woodlands SAC consists of mature Beech forests and Yew woods on steep slopes. The stands lie within a mosaic of scrub and other woodland types and are the most easterly of the Beech woodland sites selected. Parts of the woods were affected by the storm of 1987. Small areas of unimproved chalk grassland are also present.

The area is considered one of the best areas in the United Kingdom for *Asperulo-Fagetum* beech forests and one of the best areas in the British Isles for *Taxus baccata* woods.

The geological interest within the site occurs in the Upper and Lower Culand Pits. The sequence of Chalk in these pits has yielded rich and diverse collections of fossil fishes which complement those from Lewes in Sussex. The material is superbly preserved, frequently without significant crushing or distortion, and the fish are usually articulated, and thus have been the subject of much scientific research.

## 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:

- **H9130 *Asperulo-Fagetum* beech forests**

This site consists of mature *Asperulo-Fagetum* beech forests and also yew H91J0 Yew *Taxus baccata* woods on steep slopes. The stands lie within a mosaic of scrub and other woodland types and are the most easterly of the beech woodland sites selected. Parts of the woods were affected by the Great Storm of 1987.

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

These grasslands are typically found on thin, well-drained, lime-rich soils associated with chalk and limestone. 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.

The chalk grassland is primarily in the north-west section of the SAC and is dominated by upright brome *Bromus erectus* and sheep's fescue *Festuca ovina* but supports many other plants which are characteristic of unimproved downland. Among these are dwarf thistle *Cirsium acaule*, chalk milkwort *Polygala calcarea*, clustered bellflower *Campanula glomerata*, horseshoe vetch *Hippocrepis comosa*, and several species of orchid including the scarce musk orchid *Herminium monorchis* and man orchid *Aceras anthropophorum*. This range of food-plants and the warm conditions are ideal for insects and the area is of great entomological importance. It is the only known location in Britain for the moth *Hypercallia citrinalis* and several other very scarce moths, beetles and grasshoppers also occur.

- **H91J0 *Taxus baccata* woods of the British Isles \* Priority feature**

Yew *Taxus baccata* woodland at this site is associated with H9130 *Asperulo-Fagetum* beech forests, scrub and small areas of unimproved grassland on thin chalk soils. Where the shade is not too dense dog's mercury *Mercurialis perennis* predominates in the ground flora. The site is the most easterly of those selected.

**Table 1: Supplementary Advice for Qualifying Features: H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*); Dry grasslands and scrublands on chalk or limestone**

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Extent and distribution of the feature</b>	<b>Extent of the feature within the site</b>	Maintain the total extent of the feature to 40.4 hectares	<p>There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored. The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements given may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information.</p> <p>The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations.</p> <p>Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis.</p>	<p>JNCC. (2015). Natura 2000 – Standard Data Form; North Downs Woodlands.</p> <p>NATURAL ENGLAND. (2014). Definitions of Favourable Condition for Designated Features of Interest; Wouldham to Detling Escarpment SSSI (Final).</p> <p>NATURAL ENGLAND. (2014). Definitions of Favourable Condition for Designated Features of Interest; Halling to Trottscliffe Escarpment SSSI (Final).</p>
<b>Extent and distribution of the feature</b>	<b>Spatial distribution of the feature within the site</b>	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes.</p> <p>This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>composition of the Annex I habitat.</p> <p>Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction.</p> <p>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>	
<b>Structure and function (including its typical species)</b>	<b>Vegetation community composition</b>	<p>Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification type (s)</p> <p>CG2 <i>Festuca ovina</i> – <i>Avenula pratensis</i> grassland (all forms)</p> <p>CG3 <i>Bromus erectus</i> grassland (all forms)</p> <p>CG4 <i>Brachypodium pinnatum</i> grassland (all forms)</p> <p>CG5 <i>Bromus erectus</i> – <i>Brachypodium pinnatum</i> grassland (all forms)</p>	<p>This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC).</p> <p>Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).</p>	<p>JNCC. (2015). <i>Natura 2000 – Standard Data Form; North Downs Woodlands</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Wouldham to Detling Escarpment SSSI (Final)</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Halling to Trottiscliffe Escarpment SSSI (Final)</i>.</p>
<b>Structure and function (including its</b>	<b>Vegetation: proportion of herbs</b>	Restore the proportion of herbaceous species within the range 40%-90%	A high cover of characteristic herbs, including sedges ( <i>Carex</i> species) is typical of the structure of this habitat type.	This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI condition</a>



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)	(including <i>Carex</i> spp )			<a href="#">assessments</a>
<b>Structure and function (including its typical species)</b>	<b>Key structural, influential and/or distinctive species</b>	<p>Restore the abundance of the typical species listed below to enable each of them to be a viable component of the H6210 habitat;</p> <p>The constant and preferential plants of the CG2, CG3, CG4 and CG5 grassland NVC community types which forms a key component of the H6210 feature</p> <p>Vascular plant assemblage including: Ground Pine <i>Ajuga chamaepitys</i>; Man Orchid <i>Aceras anthropophorum</i>; Lady Orchid – <i>Orchis purpurea</i>; Cut-leaved germander <i>Teucrium botrys</i>; Musk orchid <i>Herminium monorchis</i></p>	<p>Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include;</p> <ul style="list-style-type: none"> <li>• <b>Structural</b> 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').</li> <li>• <b>Influential</b> 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)</li> <li>• <b>Site-distinctive</b> species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC.</li> </ul> <p>There may be natural fluctuations in the frequency and cover of each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available.</p>	
<b>Structure and function (including its typical species)</b>	<b>Vegetation: undesirable species</b>	Restore the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or	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	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		hydrology which may encourage their spread.	aggressive native species which may uncharacteristically dominate the composition of the feature.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation community transitions</b>	Maintain the pattern 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.	
<b>Structure and function (including its typical species)</b>	<b>Soils, substrate and nutrient cycling</b>	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 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.	
<b>Structure and function (including its typical species)</b>	<b>Functional connectivity with wider landscape</b>	Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	<p>This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. These connections may take the form of landscape features, such as habitat patches, hedges, watercourses and verges, outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site.</p> <p>These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will</p>	NATURAL ENGLAND, Priority habitat inventory (available on interactive mapping system MAGIC: <a href="http://www.magic.gov.uk/">http://www.magic.gov.uk/</a> )



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>advise as to whether these are applicable on a case by case basis.</p> <p>There are additional areas of lowland calcareous grassland, good quality semi-improved grassland, and areas of deciduous woodland that connect to the SAC. Some of this priority habitat falls within non SAC units of Halling to Trottiscliffe Escarpment SSSI and Wouldham to Delting Escarpment SSSI. Peters Pit SAC and SSI, Holborough to Burham Marshes SSSI and Houlder and Monarch Hill Pits Upper Halling SSSI are situated between the two portions of North Downs Woodlands SAC. These designated sites support habitats including coastal and floodplain grazing marsh, good quality semi-improved grassland, coastal saltmarsh, deciduous woodland and reedbeds.</p>	
<b>Structure and function (including its typical species)</b>	<b>Adaptation and resilience</b>	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	<p>This recognises the increasing likelihood of natural habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being low, taking into account the sensitivity, fragmentation, topography and management of its habitats.</p> <p>This means that this site is considered to be vulnerable overall but are a lower priority for further assessment and action. Individual species may be more or less vulnerable than their</p>	NATURAL ENGLAND. (2015). Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England [Available at <a href="http://publications.naturalengland.org.uk/publication/4954594591375360">http://publications.naturalengland.org.uk/publication/4954594591375360</a> ].

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>supporting habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.</p> <p>Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.</p>	
<b>Supporting processes (on which the feature relies)</b>	<b>Air quality</b>	<p>Maintain as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (<a href="http://www.apis.ac.uk">www.apis.ac.uk</a>).</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>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<sub>3</sub>), oxides of nitrogen (NO<sub>x</sub>) and sulphur dioxide (SO<sub>2</sub>), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis.</p> <p>Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.</p> <p>There are concerns about the risk of atmospheric nitrogen</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 (<a href="http://www.apis.ac.uk">www.apis.ac.uk</a>).</p> <p>NATURAL ENGLAND (2014). <a href="#">Site Improvement Plan; North Downs Woodlands SAC.</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>deposition which have been flagged as needing further investigation but currently the critical load for the site is within acceptable limits.</p> <p>Nitrogen Deposition (kg N/ha/yr): 15.3 which is between Critical Loads (kg N/ha/yr): 15-25</p>	
<b>Supporting processes (on which the feature relies)</b>	<b>Conservation measures</b>	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	<p>Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>Significant scrub clearance has been carried out and grazing regimes, including those with native hebridean sheep have been established. These management practices should be maintained to keep scrub at a manageable level. These management practices should be applied across this habitat feature.</p>	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .
<b>Version Control</b>				
Advice last updated: N/A				
<b>Variations from national feature-framework of integrity-guidance:</b> N/A				

**Table 2: 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)
<b>Extent and distribution of the feature</b>	<b>Extent of the feature within the site</b>	Maintain the total extent of the feature to 66.08 hectares	<p>See the explanatory notes for this attribute above in Table 1</p> <p>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).</p> <p>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.</p>	<p>JNCC. (2015). <i>Natura 2000 – Standard Data Form; North Downs Woodlands</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Wouldham to Detling Escarpment SSSI (Final)</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Halling to Trottscliffe Escarpment SSSI (Final)</i>.</p>
<b>Extent and distribution of the feature</b>	<b>Spatial distribution of the feature within the site</b>	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes.</p> <p>This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation community composition</b>	<p>Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification type</p> <p>W13 <i>Taxus baccata</i> woodland</p>	<p>This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC).</p> <p>Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).</p>	<p>JNCC. (2015). <i>Natura 2000 – Standard Data Form; North Downs Woodlands</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Wouldham to Detling Escarpment SSSI (Final)</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Halling to Trottscliffe Escarpment SSSI (Final)</i>.</p>
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - canopy cover</b>	Maintain an appropriate tree canopy cover across the feature, which will typically be between 40-90% of the site	<p>Canopy cover is the overall proportion of vegetative cover consisting of any woody layer ranging from established regeneration to mature and veteran stages. Woodland canopy density and structure is important because it affects ecosystem function and in particular microclimate, litterfall, soil moisture, nutrient turnover and shading; this in turn influences the composition of plants and animals in lower vegetation layers and soil.</p> <p>Open canopies with just scattered trees will have less of a</p>	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - open space</b>	Maintain areas of permanent/temporary open space within the woodland feature, typically to cover approximately 10%of area	<p>Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context.</p> <p>Having some open, sunlit and largely tree-less areas as part of the woodland community is often important to facilitate natural tree and shrub regeneration and also to provide supporting habitat for specialist woodland invertebrates, birds, vascular and lower plants. Such open space can be permanent or temporary and may consist of managed grazed areas, linear rides and glades, or naturally-produced gaps caused by disturbance events such as windthrow/fire/tree falling over/ snow damage.</p>	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - old growth</b>	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	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			characteristic and important features, and their continuity should be a priority.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - dead wood</b>	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m <sup>3</sup> per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare	<p>Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context.</p> <p>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.</p>	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - age class distribution</b>	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 <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - shrub layer</b>	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.	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - Woodland edge</b>	Maintain a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or	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	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>species)</b>	<b>(graduated edge; buffered; mosaics with other habitats)</b>	scrub.	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.	
<b>Structure and function (including its typical species)</b>	<b>Adaptation and resilience</b>	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 explanatory notes for this attribute above in Table 1	NATURAL ENGLAND. (2015). Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England (Available at <a href="http://publications.naturalengland.org.uk/publication/4954594591375360">http://publications.naturalengland.org.uk/publication/4954594591375360</a> )
<b>Structure and function (including its typical species)</b>	<b>Regeneration potential</b>	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.	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Tree and shrub species composition</b>	Maintain a canopy and understorey of which 95% is composed of site native trees and shrubs	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	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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).	
<b>Structure and function (including its typical species)</b>	<b>Key structural, influential and/or distinctive species</b>	<p>Maintain species listed below to enable each of them to be a viable component of the H91J0 habitat;</p> <p>The constant and preferential plants of the W13 woodland NVC community types which forms a key component of the H91J0 feature</p> <p>Vascular plant assemblage including White mullein <i>Verbascum lychnitis</i>; Stinking hellebore <i>Helleborus foetidus</i>; Lady orchid <i>Orchis purpurea</i></p>	See the explanatory notes for this attribute above in Table 1	<p>JNCC. (2015). <i>Natura 2000 – Standard Data Form; North Downs Woodlands</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Wouldham to Detling Escarpment SSSI (Final)</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Halling to Trottiscliffe Escarpment SSSI (Final)</i>.</p>
<b>Structure and function (including its typical species)</b>	<b>Invasive, non-native and/or introduced species</b>	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the feature	<p>Invasive or introduced non-native species are a serious potential threat to the biodiversity of native and ancient woods, because they are able to exclude, damage or suppress the growth of native tree, shrub and ground species (and their associated typical species), reduce structural diversity and prevent the natural regeneration of characteristic site-native species.</p> <p>Once established, the measures to control such species may also impact negatively on the features of interest (e.g. use of broad spectrum pesticides). Such species can include Rhododendrons, snowberry, Japanese knotweed, giant hogweed and Himalayan balsam, for example. Similarly, this would include pheasants, rabbits and non-native invertebrate 'pest' species.</p>	NATURAL ENGLAND (2014). <a href="#">Site Improvement Plan; North Downs Woodlands SAC.</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Invasive Sycamore has the potential to regenerate in woodland gaps reducing overall extent of SAC feature. This is more of an issue in Beech stands than in Yew woodland where Yew tends to eventually succeed in dominating the canopy.	
<b>Structure and function (including its typical species)</b>	<b>Soils, substrate and nutrient cycling</b>	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.	
<b>Supporting processes (on which the feature relies)</b>	<b>Functional connectivity with wider landscape</b>	Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	<p>This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. These connections may take the form of landscape features, such as habitat patches, hedges, watercourses and verges, outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site.</p> <p>These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.</p> <p>There are additional areas of lowland calcareous grassland, good quality semi-improved grassland, and areas of deciduous</p>	NATURAL ENGLAND, Priority habitat inventory. Available on interactive mapping system MAGIC: <a href="http://www.magic.gov.uk/">http://www.magic.gov.uk/</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			woodland that connect to the SAC. Some of this priority habitat falls within non SAC units of Halling to Trottiscliffe Escarpment SSSI and Wouldham to Delting Escarpment SSSI. Peters Pit SAC and SSI, Holborough to Burham Marshes SSSI and Houlder and Monarch Hill Pits Upper Halling SSSI are situated between the two portions of North Downs Woodlands SAC. These designated sites support habitats including coastal and floodplain grazing marsh, good quality semi-improved grassland, coastal saltmarsh, deciduous woodland and reedbeds.	
<b>Supporting processes (on which the feature relies)</b>	<b>Air quality</b>	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 ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).	See the explanatory notes for this attribute above in Table 1  Nitrogen Deposition (kg N/ha/yr): 25.9 which is above Critical Loads (kg N/ha/yr): 5-15	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 ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).  NATURAL ENGLAND (2014). <a href="#">Site Improvement Plan; North Downs Woodlands SAC.</a>
<b>Supporting processes (on which the feature relies)</b>	<b>Hydrology</b>	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. Eg through extraction of ground or surface waters; diverting or damming river channels; pollution of water source;	NATURAL ENGLAND (2014). <a href="#">Site Improvement Plan; North Downs Woodlands SAC.</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			channel alignment that disrupts natural geomorphological processes; tunnelling etc.	
<b>Supporting processes (on which the feature relies)</b>	<b>Illumination</b>	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.	
<b>Version Control</b>				
Advice last updated: N/A				
<b>Variations from national feature-framework of integrity-guidance:</b> N/A				



**Table 3: Supplementary Advice for Qualifying Features: H9130. *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils**

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Extent and distribution of the feature</b>	<b>Extent of the feature within the site</b>	Maintain the total extent of the feature at 66.08 hectares.	<p>See the explanatory notes for this attribute above in Table 1</p> <p>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).</p> <p>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.</p>	<p>JNCC. (2015). <i>Natura 2000 – Standard Data Form; North Downs Woodlands.</i></p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Wouldham to Detling Escarpment SSSI (Final).</i></p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Halling to Trottscliffe Escarpment SSSI (Final).</i></p>
<b>Extent and distribution of the feature</b>	<b>Spatial distribution of the feature within the site</b>	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat.</p> <p>Smaller fragments of habitat can typically support smaller and 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>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Structure and function (including its typical species)</b>	<b>Vegetation community composition</b>	<p>Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification type</p> <p><i>W12 Fagus sylvatica – Mercurialis perennis</i> woodland</p>	<p>This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC).</p> <p>Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature.</p>	<p>JNCC. (2007). Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Peterborough: JNCC. Available from: <a href="http://jncc.defra.gov.uk/pdf/Article17/FCS2007-H9130-audit-Final.pdf">http://jncc.defra.gov.uk/pdf/Article17/FCS2007-H9130-audit-Final.pdf</a></p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Wouldham to Detling Escarpment SSSI (Final)</i>.</p> <p>NATURAL ENGLAND. (2014). <i>Definitions of Favourable Condition for Designated Features of Interest; Halling to Trottscliffe Escarpment SSSI (Final)</i>.</p>
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - canopy cover</b>	<p>Maintain an appropriate tree canopy cover across the feature, which will typically be between 40-90% of the site</p>	<p>Canopy cover is the overall proportion of vegetative cover consisting of any woody layer ranging from established regeneration to mature and veteran stages. 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).</p> <p>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</p>	<p>This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a>.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			should provide a core of woodland interior conditions with some open and edge habitat as well.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - open space</b>	Maintain areas of permanent/temporary open space within the woodland feature, typically to cover approximately 10% of area	<p>Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context.</p> <p>Having some open, sunlit and largely tree-less areas as part of the woodland community is often important to facilitate natural tree and shrub regeneration and also to provide supporting habitat for specialist woodland invertebrates, birds, vascular and lower plants. Such open space can be permanent or temporary and may consist of managed grazed areas, linear rides and glades, or naturally-produced gaps caused by disturbance events such as windthrow/fire/tree falling over/snow damage.</p>	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - old growth</b>	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.	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - dead wood</b>	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m <sup>3</sup> per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, and >10 standing dead trees per hectare	<p>Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. The targets set within this attribute should reflect the most appropriate structure for the woodland feature on a particular site, taking account of its known interest, history, past management and the landscape context.</p> <p>Dead and actively decaying wood, either as part of a standing</p>	This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a> .

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - age class distribution</b>	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 <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - Woodland edge (graduated edge; buffered; mosaics with other habitats)</b>	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.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - age class distribution</b>	Maintain a diversity (at least 3 species on more base rich sites) of site-native trees (e.g. beech, ash, whitebeam, yew, sycamore, holly) across the site.	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 <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Browsing and grazing by herbivores</b>	Maintain browsing/grazing (e.g. by livestock) to sufficient levels to allow tree seedlings and saplings the opportunity to exceed browse height, and which maintain the characteristic structure of the woodland feature	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,	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			heavy grazing by deer or sheep prevents woodland regeneration, and can cause excessive trampling and/or poaching damage, canopy fragmentation, heavy browsing, barkstripping and a heavily grazed sward.	
<b>Structure and function (including its typical species)</b>	<b>Regeneration potential</b>	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 ;	<p>The regeneration potential of the woodland feature must be maintained if the wood is to be sustained and survive, both in terms of quantity of regeneration and in terms of appropriate species. This will include regeneration of the trees and shrubs from saplings or suckers, regrowth from coppice stools or pollards, and where appropriate planting. Browsing and grazing levels must permit regeneration at least in intervals of 5 years every 20. The density of regeneration considered sufficient is less in parkland sites than in high forest. Regeneration from pollarding of veteran trees should be included where this is happening.</p> <p>A restore target has been set as beech regeneration is insufficient to retain canopy cover in the long term. In addition, Beech saplings are susceptible to squirrel damage.</p>	NATURAL ENGLAND (2014). <a href="#">Site Improvement Plan; North Downs Woodlands SAC.</a>
<b>Structure and function (including its typical species)</b>	<b>Tree and shrub species composition</b>	Maintain a canopy and understorey of which 95% is composed of site native trees and shrubs	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 <a href="#">site condition assessments</a> .
<b>Structure and function (including its typical species)</b>	<b>Key structural, influential and/or distinctive species</b>	<p>Maintain species listed below to enable each of them to be a viable component of the H9130 habitat;</p> <p>The constant and preferential plants of the W12 woodland NVC community types which forms a key component of the H9130 feature</p>	See the explanatory notes for this attribute above in Table 1	<p>Hall, J.E., Kirby, K.J and Whitbread, A.M. (2004). <i>National Vegetation Classification: Field guide to woodland</i>. Peterborough: JNCC.</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">site condition assessments</a>.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		Vascular plant assemblage including White mullein <i>Verbascum lychnitis</i> ; Stinking hellebore <i>Helleborus foetidus</i> ; Lady orchid <i>Orchis purpurea</i>		
<b>Structure and function (including its typical species)</b>	<b>Soils, substrate and nutrient cycling</b>	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.	
<b>Structure and function (including its typical species)</b>	<b>Root zones of ancient trees</b>	Restore the soil structure within and around the root zones of the mature and ancient tree cohort to an un-compacted condition	<p>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.</p> <p>Unless carefully managed, activities such as construction, forestry management and trampling by grazing livestock, recreational vehicle use and human feet during recreational activity may all contribute to excessive soil compaction around ancient trees.</p> <p>A restore target has been set as off-road vehicles as well as all-terrain bikes are having an impact on parts of the woodland. Vehicle damage is associated with vehicles coming off the Public Rights of Way (PRoW) into the woodland.</p>	NATURAL ENGLAND (2014). <a href="#">Site Improvement Plan; North Downs Woodlands SAC.</a>
<b>Supporting processes (on which the feature relies)</b>	<b>Air quality</b>	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	<p>See the explanatory notes for this attribute above in Table 1</p> <p>Nitrogen Deposition (kg N/ha/yr): 25.9 which is above Critical Loads (kg N/ha/yr): 10-20</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



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		feature of the site on the Air Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).		( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).  NATURAL ENGLAND (2014). <a href="#">Site Improvement Plan: North Downs Woodlands SAC.</a>
<b>Supporting processes (on which the feature relies)</b>	<b>Hydrology</b>	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.	NATURAL ENGLAND (2014). <a href="#">Site Improvement Plan: North Downs Woodlands SAC.</a>
<b>Supporting processes (on which the feature relies)</b>	<b>Illumination</b>	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.	
<b>Version Control</b>				
Advice last updated: N/A				
<b>Variations from national feature-framework of integrity-guidance:</b> N/A				