



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

**Chilterns Beechwoods Special Area of Conservation (SAC)  
Site code: UK0012724**



*Photo: Graham Steven*

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## About this document

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

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**

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## About this site

### European Site information

|  |   |
|--|---|
| <b>Name of European Site</b>   | Chilterns Beechwoods Special Area of Conservation (SAC)   |
| <b>Location</b>  | Oxfordshire, Buckinghamshire, Windsor and Maidenhead, Hertfordshire   |
| <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>  | 1 April 2005  |
| <b>Qualifying Features</b>   | See section below   |
| <b>Designation Area</b>  | 1276.48 ha  |
| <b>Designation Changes</b>   | Not applicable  |
| <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>     | Ashridge Commons and Woods SSSI, Aston Rowant Woods SSSI, Bisham Woods SSSI, Bradenham Woods, Park Wood and the Coppice SSSI, Ellesborough and Kimble Warrens SSSI, Naphill Common SSSI, Hollowhill and Pullingshill Woods SSSI, Tring Woodlands SSSI, Windsor Hill SSSI. |
| <b>Relationship with other European or International Site designations</b> | Aston Rowant Woods SSSI component part of Chilterns Beechwoods SAC is immediately adjacent to <a href="#">Aston Rowant SAC</a> .  |

### Site background and geography

The Chilterns Beechwoods SAC is set within the [Chilterns National Character Area](#), an extensively wooded and farmed landscape underlain by chalk bedrock that rises up from the London Basin to form a north-west facing escarpment offering long views over the adjacent vales. It is made up of a number of component woodlands representing a range of semi-natural woodlands in which beech is a prominent or dominant canopy tree. The woodlands are in a variety of landscape settings, from extensive areas of the northern Chilterns scarp slope, to dry valley slopes and moderately sloping areas of the Chilterns plateau.

This variety of situations means that the woodlands have a range of soil types from very nutrient-poor, highly calcareous and free-draining soils on the steeper slopes to more clay-rich or gravelly, poorly-drained soils on the plateau. This gives rise to considerable variation in the composition of the woodlands, which has also been strongly influenced by past management history. The woodlands vary in character, structure and the composition of the ground flora. Some have a high forest, closed canopy structure in which beech is overwhelmingly dominant but others have a diverse mixture of tree and shrub species.

Many of the woods were formerly an important source of timber for furniture production, others have developed through the process of seral succession. In recent times the Chilterns woodlands have become a highly valued feature of the landscape and form an integral part of an important recreational resource for walking and cycling.

With the exception of Bisham Woods, all of the component parts of the SAC are also located within the [Chilterns Area of Outstanding Natural Beauty](#).

## 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 ('Beech forests on neutral to rich soils')**

The Chilterns Beechwoods SAC has a range of woodland types in which beech *Fagus sylvatica* is a major or dominant component. These represent good examples of southern beech woodlands characteristic of the south east of England on the Chalk.

The Chilterns have the most extensive area of native beech woodland in England. The continuity of woodland cover in this area means that many woodland ecosystems have evolved over centuries. All of the native Chilterns beechwood types are represented in the SAC, from dry beechwoods on acid soils through oak-beech woods on heavy clays to beechwoods on thin, chalky rendzina soils. Beech woodlands in the Chilterns are of particular interest in supporting a diverse range of species, some of which are very rare, and form distinctive habitat types. The full range of woodland communities in which beech is a major component as described in the National Vegetation Classification (Rodwell ed 1991) is represented in the SAC. These correspond to NVC types W12 *Fagus sylvatica* – *Mercurialis perennis* woodland, W14 *Fagus sylvatica* – *Rubus fruticosus* woodland and W15 *Fagus sylvatica* – *Deschampsia flexuosa* woodland. All three NVC types sometimes occur together on a site. Each community has a different associated suite of species which change according to slope and soil type.

The woodlands vary in composition and character in relation to slope, aspect, substrate and soil depth. Those areas of woodland on thin, chalky soils generally have a higher proportion of ash in the canopy and have a ground flora characteristically dominated by dog's mercury *Mercurialis perennis*, together with less common plants such as sanicle *Sanicula europaea* and yellow archangel *Lamium galeobdolon*. On deeper soils where there are deposits of clay-rich material over the chalk beech is generally the dominant tree species with occasional oak *Quercus robur*, cherry *Prunus avium* and rowan *Sorbus aucuparia*. The ground flora in these areas typically has frequent bramble *Rubus fruticosus* but with a wide range of other associates including violet helleborine *Epipactis purpurata*, wood barley *Hordelymus europaeus*, wood melick *Melica uniflora*, wood anemone *Anemone nemorosa* and bluebell *Hyacinthoides non-scripta*.

The Chilterns Beechwoods SAC supports several plants with a restricted distribution including coralroot bittercress *Cardamine bulbifera*, southern woodrush *Luzula forsteri*, red helleborine *Cephalanthera rubra* and lesser hairy-brome *Bromus benekenii*. The Chilterns Beechwoods represent a stronghold for one of the UK's rarest plants ghost orchid *Epipogium aphyllum*. Another notable feature is the prominence of box *Buxus sempervirens* at Ellesborough and Kimble Warrens. Woods in which native box is a major component are a very rare feature in the UK and this example is regarded as the largest native box woodland.

- **H6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia). ('Dry grasslands and scrublands on chalk or limestone')**

These grasslands are 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 habitat is characteristically highly species-rich, supporting a wide range of specialised plants and invertebrates, including many rare species.

At the Chilterns Beechwoods SAC the habitat has a restricted distribution but there are extensive areas at Windsor Hill SSSI and Ellesborough and Kimble Warrens SSSI. The unimproved chalk grassland present in the SAC is typically made up by a wide range of grasses and herbs adapted to the predominantly nutrient-poor, short-grazed conditions. These include grasses such as sheep's fescue

*Festuca ovina*, quaking grass *Briza media*, crested hair-grass *Koeleria macrantha* and meadow oat *Helictotrichon pratense*, and wildflowers such as salad burnet *Sanguisorba minor*, dwarf thistle *Cirsium acaule*, wild thyme *Thymus praecox*, squinancywort *Asperula cynanchica*, small scabious *Scabiosa columbaria* and autumn gentian *Gentianella amarella*.

Scarce invertebrates associated with these grasslands include silver-spotted skipper *Hesperia comma*, small skipper *Thymelicus sylvestris* and chalkhill blue *Polyommotus coridon* butterflies.

The grassland types represented in the SAC correspond to two distinctive community types as described in the National Vegetation Classification (NVC) (Rodwell 1992). These are NVC type CG2 *Festuca ovina* – *Avenula pratensis* grassland and CG3 *Bromus erectus* grassland.

### Qualifying Species:

- **S1083 Stag beetle *Lucanus cervus***

The stag beetle is the UK's largest terrestrial beetle, and amongst the most spectacular, reaching 7 cm in length.

The beetle's larvae develop in decaying tree stumps and the fallen timber of broad-leaved trees in contact with the ground, especially of apple *Malus* spp., elm *Ulmus* spp., lime *Tilia* spp., beech *Fagus sylvatica* and oak *Quercus* spp. Such decaying timber is an essential feature for the conservation of structure and function of the habitat for this species. Development takes around 3-4 years. Adults are active on warm evenings, but probably only the males fly regularly and come readily to lights. Adults have been recorded from May to September or even October, though they are most abundant in early summer.

The stag beetle has a south-eastern distribution in the UK and is close to its northern limit at the southern end of the Chilterns. It been recorded on a number of occasions at Bisham Woods and Hollowhill and Pullingshill Woods, indicating that these woods provide important supporting habitat at the northern limit of stag beetle distribution.



Stag beetle © [People's Trust for Endangered Species](#)

### 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. Grassland and montane communities*. Cambridge University Press.

**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 H6210 feature at approximately 104.15 hectares of species-rich grassland.                                   | <p>There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature. The baseline-value of extent given is taken from site-based surveys at the time of SAC designation</p> <p>Area measurements are approximate in recognition that chalk grassland is a dynamic habitat and its extent may vary in relation to the cover of scrub and depending on the methods used in calculating area figures. The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features.</p> <p>Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations. Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis.</p>   |  |
| <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 H6210 feature, including where applicable its component vegetation types, across the site | It is important that the current distribution of species-rich grassland is maintained. A contraction in geographic spread of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, 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>Abundance of herbs (including <i>Carex</i> spp )</b>    | Maintain the cover of herbaceous species within the H6210 grassland sward at between 40-90%.   | A high cover of characteristic herbs, including sedges ( <i>Carex</i> species), is typical of the structure of this habitat type and will usually indicate good habitat condition and good management.   | This aspect is included as a key indicator which is measured in the course of SSSI condition |

| Attributes  |   | Targets  | Supporting and Explanatory Notes   | Sources of site-based evidence (where available)   |
|---|---|--|--|--|
|   |   |  |  | assessments carried out by Natural England.  |
| <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 rainfall 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. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being low, taking into account the sensitivity, fragmentation, topography and management of its habitat. This means that this site is considered to be vulnerable overall but at a lower priority for further assessment and action. Individual species may be more or less vulnerable than their supporting habitat itself. In many cases, change will be inevitable so appropriate monitoring may be advisable.</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> ]. |
| <b>Structure and function (including its typical species)</b> | <b>Functional connectivity with wider landscape</b> | Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site | It is important that the SAC continues to sit in a landscape with good connectivity of habitats. This may be of critical importance in maintaining the condition of the habitat in the long-term, particularly in response to predicted changes in climate. 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 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 (because the wider landscape is already fragmented). 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.   |  |
| <b>Structure and function (including its typical species)</b> | <b>Key structural, influential</b>                  | Maintain the abundance of the species listed below to enable each of them to be  | 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   | The list of typical species is based upon the author's   |



| Attributes       |   | Targets   | Supporting and Explanatory Notes  | Sources of site-based evidence (where available)   |
|------------------|---|---|---|--|
| typical species) | and/or distinctive species: flora and fauna | <p>a viable component of the H6210 habitat;</p> <p>Grasses and sedges<br/>           Sheep's fescue <i>Festuca ovina</i>, Meadow oat <i>Helictotrichon pratense</i><br/>           Downy oat <i>Helictotrichon pubescens</i>, Crested hair-grass <i>Koeleria macrantha</i><br/>           Quaking grass <i>Briza media</i><br/>           Spring sedge <i>Carex caryophyllea</i>, Glaucous sedge <i>Carex flacca</i></p> <p>Other plants<br/>           Wild thyme <i>Thymus praecox</i>, Squinancywort <i>Asperula cynanchica</i><br/>           Dwarf thistle <i>Cirsium acaule</i>, Salad burnet <i>Sanguisorba minor</i><br/>           Rockrose <i>Helianthemum nummularium</i>, Small scabious <i>Scabiosa columbaria</i>, Marjoram <i>Origanum vulgare</i><br/>           Ox-eye daisy <i>Leucanthemum vulgare</i><br/>           Common spotted-orchid <i>Dactylorhiza fuchsii</i><br/>           Eyebright <i>Euphrasia officinalis</i>, Mouse-ear hawkweed <i>Pilosella officinarum</i>, Rough hawkbit <i>Leontodon hispidus</i><br/>           Fairy flax <i>Linum catharticum</i>, Hoary plantain <i>Plantago media</i></p> | <p>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.</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>knowledge of the sites involved obtained through site surveys and SSSI condition assessments.</p> |

| Attributes  |  | Targets   | Supporting and Explanatory Notes   | Sources of site-based evidence (where available)   |
|---|--|---|--|--|
|   |  | <p>Hairy violet <i>Viola hirta</i><br/>Black medick <i>Medicago lupulina</i></p> <p>Mosses and liverworts<br/><i>Rhodobryum roseum</i><br/><i>Homalothecium lutescens</i></p> <p>Assemblage of scarce grassland invertebrates</p> |  |  |
| <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 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.   |  |
| <b>Structure and function (including its typical species)</b> | <b>Supporting off-site habitat</b>           | Maintain the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the H6210 feature.  | <p>The structure and function of the qualifying habitat, including its typical species, 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>In this case, the maintenance of consistent grazing regimes is of critical importance and this is usually dependent upon the availability of additional grazing land and stock handling facilities in close proximity to the grassland feature. If these are lost grazing may become unsustainable. Areas of adjacent undeveloped land may also be of importance in protecting the habitat from potentially damaging off-site pressures such as pesticide drift, nutrient enrichment or recreational pressure.</p> |  |
| <b>Structure and function (including its typical species)</b> | <b>Undesirable species</b>                   | Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils or nutrient levels which may  | There is 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. An increase in the abundance of these species will usually indicate undesirable or damaging impacts such as management neglect, nutrient input, soil disturbance, soil compaction or soil contamination. The list of species given is not exhaustive and additional native or non-native species may also be symptomatic of damaging influences.   | The species listed may be naturally present in small amounts as they are common and widespread plants. They are included here because they are |

| Attributes  |   | Targets  | Supporting and Explanatory Notes   | Sources of site-based evidence (where available)  |
|---|---|--|--|---|
|   |   | <p>encourage their spread:</p> <p>Wood false brome<br/><i>Brachypodium sylvaticum</i><br/>Tor grass <i>Brachypodium pinnatum</i><br/>False oat <i>Arrhenatherum elatius</i><br/>Nettle <i>Urtica dioica</i><br/>Creeping thistle <i>Cirsium arvense</i><br/>Dock <i>Rumex obtusifolius</i><br/>Hogweed <i>Heracleum sphondylium</i><br/>Cow parsley <i>Anthriscus sylvestris</i></p> | <p>The grasslands at this SAC are particularly vulnerable to the spread of bulky, tall grasses which have adverse impacts through shading, and by reducing the fodder value of the habitat, as well as the encroachment of woody shrubs. For these reasons a consistent grazing regime, combined with occasional manual control of scrub, are of critical importance in the maintenance of this habitat.</p>   | <p>used as 'indicator' species by Natural England when conducting assessment of SSSI condition.</p> |
| <b>Structure and function (including its typical species)</b> | <b>Vegetation community composition</b> | <p>Ensure the component vegetation communities of the H6210 feature are broadly referable to and characterised by the following National Vegetation Classification types:</p> <p>CG2 <i>Festuca ovina</i> – <i>Avenula pratensis</i> grassland;<br/>CG3 <i>Bromus erectus</i> grassland</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). 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>A rapid change in the composition of a grassland so that it changes from one NVC community to another will usually indicate a very significant change, often associated with a change in management or a damaging incident. Longer term trends which indicate a shift from one community type to another may reflect a response to climate change or other natural process and it may not be practical or appropriate to seek to prevent this.</p> |   |
| <b>Structure and function (including its typical species)</b> | <b>Vegetation community transitions</b> | <p>Maintain the pattern of natural vegetation zonation/transitions.</p>  | <p>Chalk grasslands exhibit natural variation in composition in relation to naturally-occurring changes in soil, aspect or slope, so that there may be distinctive differences between the vegetation on the brow of a slope where the soil may be relatively deep in comparison with that on steep, exposed slopes. There may also be distinctive community types associated with transitions between</p>   |   |

| Attributes  |                              | Targets   | Supporting and Explanatory Notes   | Sources of site-based evidence (where available)  |
|---|------------------------------|---|--|---|
|   |                              |   | grassland and scrub or woodland. 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>Supporting processes (on which the feature relies)</b> | <b>Air quality</b>           | Maintain the concentrations and deposition of air pollutants below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ). | <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 (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development.</p> <p>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> | 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> ). |
| <b>Supporting processes (on which the feature relies)</b> | <b>Conservation measures</b> | Maintain the management measures within the site boundary which are necessary to maintain the structure, functions and supporting processes associated with the H6210 feature   | <p>Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. In this case, the maintenance of consistent grazing regimes using appropriate numbers and types of stock are of critical importance. Chalk grassland is dependent upon grazing in order to prevent the accumulation of 'thatch', control the spread of undesirable species, maintain small-scale structural diversity and to prevent the loss of low-growing species through shading.</p> <p>Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p>  | <p>NATURAL ENGLAND, 2014. <a href="#">Site Improvement Plan</a></p> <p>ENGLISH NATURE, 2005. <a href="#">Example of Views About Management document</a></p>   |
| <b>Version Control</b>                                    |                              |   |  |   |

| Attributes   | Targets | Supporting and Explanatory Notes | Sources of site-based evidence (where available) |
|--|---------|----------------------------------|--|
| Advice last updated: n/a   |         |                                  |  |
| <b>Variations from national feature-framework of integrity-guidance:</b> n/a |         |                                  |  |

**Table 2: 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 H9130 feature at approximately 569.64 hectares.   | <p>There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature.</p> <p>The baseline value for the extent of the feature is the extent of beech woodland and associated habitat present at the time of SAC designation. The baseline value of extent is considered appropriate as the long-term objective of woodland habitat conservation at this site is to maintain the existing extent of beech and ash woodland, rather than to seek any increase in extent.</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 (such as juniper or box scrub), Natural England will advise on this on a case-by-case basis. For this feature, this attribute should be taken to mean the extent of semi-natural woodland area where the tree canopy is predominantly made up by beech, ash and oak.</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 H9130 feature, including where applicable its component vegetation types, across the site | A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, 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.  |  |

| Attributes  |   | Targets   | Supporting and Explanatory Notes  | Sources of site-based evidence (where available) |
|---|---|---|---|--|
| <b>Structure and function (including its typical species)</b> | <b>Key structural, influential and/or distinctive species</b> | Maintain the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitat:<br><br>The constant and preferential plants of the W12, W14 and W15 woodland types | See the supporting/explanatory notes for this attribute above in Table 1.   |  |
| <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  | 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 at sufficient level to maintain a continuity of canopy cover, ie browsing and grazing should not be so high and over such long periods that it is creating gaps in the canopy.<br><br>Regeneration can be adversely affected by grazing/browsing by a variety of mammals such as deer, rabbits, voles and hares, and bark stripping by species such as grey squirrel and edible dormouse.<br><br>Typically, tree seedlings of desirable species (measured by seedlings and <1.3m saplings above grazing and browsing height) should always be visible in sufficient numbers in gaps, at the wood edge and/or as re-growth as appropriate to maintain canopy cover. |  |
| <b>Structure and function (including its typical species)</b> | <b>Root zones of ancient trees</b>                            | Maintain the soil structure within and around the root zones of the mature and ancient tree cohort in an un-compacted condition   | The management of land within and around woodlands can be crucial to their long-term continuity. The condition of the soil surrounding trees will affect their roots, associated mycorrhizal fungi and growth. Tree health may be affected as a result of soil compaction because chalk and/or clay particles are pressed together, leaving little space for air and water which are essential for root growth. Unless carefully managed, activities such as construction, forestry management and trampling by livestock and human feet may all contribute to excessive soil compaction around trees.  |  |
| <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 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  |  |

| Attributes  |   | Targets   | Supporting and Explanatory Notes   | Sources of site-based evidence (where available)   |
|---|---|---|--|--|
| species)  |   | soil nutrient status and fungal:bacterial ratio, to within typical values for the H9130 habitat.  | 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 feature.   |  |
| <b>Structure and function (including its typical species)</b> | <b>Tree and shrub species composition</b> | Maintain (or restore where necessary) a woodland canopy and under-storey of which 95% is composed of site native trees and shrubs (eg beech, ash, oak, cherry, rowan, yew, hazel, holly elder and box) across the H9130 feature | <p>Native trees and shrubs in general support a greater diversity of associated species than non-native species, especially amongst groups of invertebrates which depend directly on trees for food and shelter. There are many plants and animals which use or co-exist with non-native trees, but many rare and threatened woodland species are specialists adapted to one or a few native trees or shrub species. Note that box is only considered native at one component part of the SAC, Ellesborough and Kimble Warrens SSSI, and its presence elsewhere may be considered undesirable.</p> <p>It is important to note that parts of the component sites have a highly modified composition, either through selective felling or re-planting, in connection with historic timber production. Over time, it is likely that the prominence of beech in the canopy will decrease, particularly on thinner soils where ash is likely to have a natural advantage. However, this process may be affected by ash die-back making it more difficult to predict the long-term composition of these woodlands. It is possible that sycamore may increase in abundance by taking advantage of gaps in the canopy created by ash die-back – this would be considered an undesirable trend because sycamore often has damaging impacts on ground flora composition. Similarly, yew, which currently makes up a very small component of the woodland cover may increase in cover, particularly on thin, chalky soils. Although native to the Chilterns and a characteristic component of some woodland and scrub communities a significant shift towards canopy dominance by yew would be considered undesirable because of the profound impacts of the deep shade cast by this tree.</p> <p>Wherever possible, natural processes of tree regeneration should be allowed to proceed to promote a more natural tree composition, although some limited intervention may be required to control the spread or abundance of species which may cause damaging effects.</p> |  |
| <b>Structure and function (including its typical species)</b> | <b>Vegetation community composition</b>   | Ensure the component vegetation communities of the H9103 feature are broadly referable to and characterised by the following National   | <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.</p> <p>In the UK these have been categorised by the National Vegetation Classification</p>   | JNCC (2009) NVC floristic tables. Accessed via the JNCC website: <a href="http://jncc.defra.gov.uk/page-4265">http://jncc.defra.gov.uk/page-4265</a> |



| Attributes  |                                    | Targets   | Supporting and Explanatory Notes   | Sources of site-based evidence (where available) |
|---|------------------------------------|---|--|--|
|   |                                    | <p>Vegetation Classification types:</p> <p>W12 <i>Fagus sylvatica</i> – <i>Mercurialis perennis</i> woodland.</p> <p>W14 <i>Fagus sylvatica</i> – <i>Rubus fruticosus</i> woodland</p> <p>W15 <i>Fagus sylvatica</i> – <i>Deschampsia flexuosa</i> woodland</p> | (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.   |  |
| <b>Structure and function (including its typical species)</b> | <b>Tree 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. Natural processes such as extreme weather events may affect the ability to meet this target but it is desirable to seek to maintain high age-class diversity wherever possible as this will generally promote greater biodiversity. Many Chilterns woodlands have relatively low age-class diversity which is often a legacy of historic management practices for timber production. The long-term aim is to promote a more natural structure.   |  |
| <b>Structure and function (including its typical species)</b> | <b>Canopy cover</b>                | Maintain an appropriate tree canopy cover across the H9130 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 woodland character and reduced diversity of woodland-dependent species. Completely closed canopies across the whole woodland are not desirable, as the heavy shade cast will tend to limit the number of associated species able to tolerate the conditions, and will tend to limit tree regeneration. In general, the woodland canopy of this feature should provide a core of woodland interior conditions with some open and edge habitat as well. In this case it is desirable that a range of canopy densities is available across the extent of the feature as the range of light conditions will favour different species. For example, the Nationally Scarce wood barley tends to increase in abundance where there are gaps in the canopy whilst violet helleborine favours areas of mature, dense canopy.</p> |  |

| Attributes  |                               | Targets  | Supporting and Explanatory Notes   | Sources of site-based evidence (where available) |
|---|-------------------------------|--|--|--|
| <b>Structure and function (including its typical species)</b> | <b>Dead and decaying wood</b> | Maintain the continuity and abundance of standing or fallen dead and decaying wood at 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. 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> <p>Many component parts of the Chilterns Beechwoods SAC have relatively low levels of dead and decaying wood, as beech trees have a tendency to collapse rather than remain standing as in the case of ash and oak. Nevertheless, the representation and retention of dead and decaying wood can be promoted through careful management planning, such as by reducing vulnerability to strong winds.</p> |  |
| <b>Structure and function (including its typical species)</b> | <b>Old growth</b>             | Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 5% of the feature at any one time) and the assemblages of veteran and ancient trees (typically around 1 tree 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. In beech woodland, old or over-mature elements of the woodland are important features, often supporting assemblages of rare fungi, saproxylic (wood-decay) invertebrates and bryophytes.</p> <p>It is important to recognise that the various components of the Chilterns Beechwoods SAC include a range of variation of age structure. Areas of old-growth woodland, veteran trees and ancient coppice are present at Naphill Common, Ashridge Woods, Aston Rowant Woods and Ellesborough and Kimble Warrens. It is desirable that these elements are maintained, which may require measures such as careful management planning, active management intervention and protection from potentially damaging influences.</p>  |  |
| <b>Structure and function (including its typical species)</b> | <b>Open woodland space</b>    | Maintain areas of permanent/temporary open space within the woodland feature, typically to cover approximately 5-10% of its area   | Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. Having some open, sunlit and largely tree-less areas as part of the woodland community is often important to facilitate natural tree and shrub regeneration and also to provide supporting habitat for specialist woodland invertebrates, birds, vascular and lower plants. Such open space can be permanent or temporary and may consist of managed grazed areas, linear rides and glades, or naturally-produced gaps caused by disturbance events such as windthrow/fire/tree falling over/snow damage.  |  |
| <b>Structure and function (including its typical species)</b> | <b>Woodland edge</b>          | Maintain a graduated woodland edge into adjacent semi-natural open   | 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   |  |

| Attributes  |              | Targets   | Supporting and Explanatory Notes  | Sources of site-based evidence (where available)  |
|---|--------------|---|---|---|
| typical species)  |              | habitats, other woodland/wood-pasture types or scrub.   | (such as hazel dormouse) make regular use of the edge habitats for feeding due to higher herb layer productivity and larger invertebrate populations. Many of the more notable plants associated with woodland glades and ride edges are commonly found in the transitional zone between woodland and grassland.  |   |
| Supporting processes (on which the feature relies)                                    | Air quality  | Restore as necessary the concentrations and deposition of air pollutants at within 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 supporting/explanatory notes for this attribute in table 1 above.<br><br>For this feature, the critical loads for nitrogen are currently being exceeded (October 2018)  | 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> ). |
| Supporting processes (on which the feature relies)                                    | Hydrology    | Maintain natural hydrological processes to provide the conditions necessary to sustain the H9130 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. Where the feature is directly over free-draining chalk soils hydrology is less likely to be an issue of concern but where the woodland is developed over clay-rich soils surface water flow may be impeded and vulnerable to effects such as groundwater pollution and drainage. Beech trees are shallow-rooted and can be particularly susceptible to damage as a result of changes in water level, both increases and decreases. |   |
| Supporting processes (on which the feature relies)                                    | Illumination | Ensure artificial light is maintained to a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H9130 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>              |              |   |   |   |
| Deleted attributes relating to wood pasture and parkland as not relevant to this SAC. |              |   |   |   |

**Table 3: Supplementary Advice for Qualifying Features: S1083. *Lucanus cervus*; Stag beetle**

| Attributes   |  | Targets  | Supporting and Explanatory Notes   | Sources of site-based evidence (where available)  |
|--|--|--|--|---|
| <b>Population (of the feature)</b>                 | <b>Population abundance</b>                          | Maintain the presence of the stag beetle population across its full range within the SAC, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent. | <p>This will ensure there is a viable population of the feature which is being maintained at or increased to a level that contributes as appropriate to its Favourable Conservation Status across its natural range in the UK.</p> <p>Due to the dynamic nature of population change, the target-value given for the population size or presence of this feature is considered to be the minimum standard for conservation/restoration measures to achieve. This minimum-value may be revised where there is evidence to show that a population's size or presence has significantly changed as a result of natural factors or management measures and has been stable at or above a new level over a considerable period. The values given here may also be updated in future to reflect any strategic objectives which may be set at a national level for this feature.</p> <p>There are currently no reliable means of estimating stag beetle population size other than by collating records of direct observation of adults. This means that estimates inevitably include a large degree of uncertainty and will tend to vary according to recording effort. Populations are thought to vary significantly in size from year to year according to natural population cycles and the availability of suitable larval habitat.</p> <p>Given the likely fluctuations in numbers over time, any impact assessments should focus on the current size of the site's population, as derived from the latest known or estimated level established using the best available data. This advice accords with the obligation to avoid deterioration of the site or significant disturbance of the species for which the site is designated, and seeks to avoid plans or projects that may affect the site giving rise to the risk of deterioration.</p> | PERCY C, BASSFORD G & KEEBLE V 2000 Findings of the 1998 National Stag Beetle Survey. Peoples Trust for Endangered Species, London. |
| <b>Supporting habitat: extent and distribution</b> | <b>Extent and distribution of supporting habitat</b> | Maintain the total extent and distribution of the habitat(s) which support the stag beetle feature   | In order to contribute towards the objective of achieving an overall favourable conservation status of the feature at a UK level, it is important to maintain or if appropriate restore the extent of supporting habitats and their range within this SAC. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending on the nature, age and accuracy of data collection, and may be subject to periodic review in light of improvements in data.   |   |
| <b>Supporting habitat:</b>                         | <b>Composition: decaying-</b>                        | Maintain an abundance and constant supply of   | Female stag beetles lay their eggs near the rotting wood and roots of broadleaved trees which are in contact with the soil so that the wood remains  |   |

| Attributes  |                                  | Targets  | Supporting and Explanatory Notes   | Sources of site-based evidence (where available) |
|---|----------------------------------|--|--|--|
| <b>structure/function</b>   | <b>wood habitat</b>              | broadleaved stumps and roots in a state of decay.  | <p>moist and is able to rot. Once they have mated, the females lay small, round eggs below ground in rotting wood, particularly log piles, rotting tree stumps and old fence posts. Larvae feed on the decaying wood around them for at least three years and up to 5 years after which they will begin to pupate into adults.</p> <p>This target may also be applicable to off-site habitat where decaying timber is present, such as in gardens, parks and roadside trees adjacent to the SAC. The presence of these features may be important in connecting the SAC population with neighbouring areas of supporting habitat.</p>   |  |
| <b>Supporting habitat: structure/function</b>   | <b>Habitat structure</b>         | Maintain a well-structured broadleaved woodland habitat with sheltered, sunlit glades and rides containing stumps and other suitable decaying wood.  | During their short adult lives the male stag beetles will spend their days sunning themselves to help gather strength to allow them to fly during the evening in an attempt to locate a mate. It is therefore desirable that areas of woodland supporting habitat are structurally diverse and have good functional linkage across the habitat which facilitates movement of stag beetles. This means that the presence of natural clearings and glades, with interconnecting rides and gaps in the canopy are all desirable features. It is also desirable that there is good functional linkage between sites so that the stag beetle population does not become genetically isolated. |  |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Adaptation and resilience</b> | Maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site  | See the supporting/explanatory notes for this attribute above.   |  |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Air quality</b>               | Restore as necessary the concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for the feature's supporting habitat on the Air Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ). | <p>See the supporting/explanatory notes for this attribute above.</p> <p>The supporting habitat of this feature is considered sensitive to changes in air quality and is currently exceeding the critical load for nitrogen (October 2018).</p>  |  |
| <b>Supporting processes (on which the</b>   | <b>Conservation measures</b>     | Maintain the management measures (either within and/or outside the site  | Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. The target may also be applicable to off-site habitat which may provide important larval habitat to support the population.  |  |

| Attributes  |                          | Targets  | Supporting and Explanatory Notes   | Sources of site-based evidence (where available) |
|---|--------------------------|--|--|--|
| <b>feature and/or its supporting habitat relies)</b>                                    |                          | boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the stag beetle feature and/or its supporting habitats. | 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.  |  |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Natural processes</b> | Ensure the continuity of timber decay and nutrient recycling processes, in particular the continued provision of plentiful decaying stumps and roots                               | These natural processes of decomposition and decay are important in providing optimal conditions for beetle to lay eggs and survive as larvae. Stag beetle larvae are dependent upon the long-term availability of constantly damp decaying wood. It is therefore important that large-diameter timber is present and that this is retained in situ without disturbance and allowed to decay naturally. Timber is most suitable when buried at or near the soil surface in shaded or slightly shaded locations rather than exposed above ground and in full sun. |  |
| <b>Version Control</b><br>Advice last updated: n/a                                      |                          |  |  |  |
| <b>Variations from national feature-framework of integrity-guidance:</b> n/a            |                          |  |  |  |