



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

**West Dorset Alder Woods Special Area of Conservation (SAC)  
UK0030299**



Wet ash – alder woodland © Natural England/Melanie Heath

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## **About this document**

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

This advice should therefore be read together with the SAC Conservation Objectives available [here](#).

**This advice replaces a draft version dated 11 February 2019 following the receipt of comments from the site's stakeholders.**

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>	West Dorset Alder Woods Special Area of Conservation (SAC)
<b>Location</b>	Dorset
<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>	329.29 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>	Aunt Mary's Bottom SSSI Frome St. Quintin SSSI Mapperton and Poorton Vales SSSI Powerstock Common and Wytherston Farm SSSI Toller Porcorum SSSI Woolcombe SSSI
<b>Relationship with other European or International Site designations</b>	None

### Site background and geography

West Dorset Alder Woods SAC consists of a number of isolated blocks of semi-natural habitat to the north of Bridport, Dorset and straddles the Marshwood & Powerstock Vales National Character Area (NCA) ([NCA Profile 139](#)) and the Dorset Downs & Cranborne Chase NCA ([NCA Profile 134](#))

The SAC covers a complex of mixed ash-alder *Fraxinus excelsior*-*Alnus glutinosa* woods that occur as sinuous valley woods along the headwaters of calcareous streams and on areas of groundwater seepage. The woods vary from those with greater tussock-sedge *Carex paniculata*, remote sedge *C. remota*, hemlock water-dropwort *Oenanthe crocata*, opposite-leaved golden-saxifrage *Chrysosplenium oppositifolium* and alternate-leaved golden-saxifrage *C. alternifolium*, to transitions to drier oak-ash woodland with ramsons *Allium ursinum*.

Several of the component woods are associated with valley mires with transitions to fen, reed swamp, fen-meadow (dominated by purple moor-grass *Molinia caerulea*) and acid grassland. Characteristic features of the woods are the shallow silty peats and tufa deposits which support an outstanding assemblage of specialised invertebrates. The streams have natural meanders, back channels and debris dams, features that are otherwise rare in the lowlands. Ancient stands of ash-alder woodland have developed some 'old growth' characteristics with associated old forest lichens.

Pedunculate oak *Quercus robur* high forest is present on free draining sandy soils with an open understorey of occasional holly, hawthorn *Crataegus monogyna* and locally hazel coppice. Bluebell

*Hyacinthoides non-scripta* is abundant with greater stitchwort *Stellaria holostea*, creeping soft-grass *Hoculus mollis* and locally, bracken *Pteridium aquilinum*.

The site also covers a mosaic of grassland and scrub habitats, with a flushed grassland and fen meadow component that supports a marsh fritillary butterfly *Euphydryas aurinia* population. Also, on the northern edge of Powerstock Common a series of ponds supports a population of great crested newts *Triturus cristatus*. The ponds range from heavily shaded to unshaded and most are sparsely vegetated by floating sweet-grass *Glyceria fluitans* and common duckweed *Lemna minor* communities. The particular combination and juxtaposition of aquatic and terrestrial habitats in this area provide ideal breeding, foraging and hibernation conditions for the great crested newt.

## 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:

- **H6410. Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*); Purple moor-grass meadows**

Molinia meadows are found mainly on moist, moderately base-rich, peats and peaty gley soils, often with fluctuating water tables. They usually occur as components of wet pastures or fens, and often form mosaics with dry grassland, heath, mire and scrub communities. This habitat type includes the most species-rich Molinia grasslands in the UK, in which purple moor-grass *Molinia caerulea* is accompanied by a wide range of associated species, including rushes, sedges and tall-growing herbs. The more impoverished forms of Molinia pasture on acidic substrates are excluded from the Annex I definition.

In the UK these grasslands are represented by two NVC types:

- M24 *Molinia caerulea* – *Cirsium dissectum* fen-meadow
- M26 *Molinia caerulea* – *Crepis paludosa* mire

M24 Molinia – *Cirsium* fen-meadow is the more widespread and diverse community and is widespread across the SAC. At West Dorset Alder Woods SAC the Molinia pasture is M24.

- **H91E0. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae); Alder woodland on floodplains \***

Mixed ash-alder *Fraxinus excelsior* - *Alnus glutinosa* woods are a characteristic feature of the sinuous valley woods developed along the headwaters of alkaline streams and seepages having their origin in the chalk downland and issuing from the underlying Upper Greensand at its junction with the Gault Clay. The woods vary from those with greater tussock-sedge *Carex paniculata*, remote sedge *C. remota*, hemlock water-dropwort *Oenanthe crocata*, opposite-leaved golden-saxifrage *Chrysosplenium oppositifolium* and alternate-leaved golden-saxifrage *C. alternifolium*, to transitions to drier oak-ash woodland with ramsons *Allium ursinum*. Several of the component sites are associated with valley mires with transitions to fen, reedswamp, fen meadow and acid grassland. Characteristic features of the woods are the shallow silty peats and tufa deposits which support an important assemblage of specialised invertebrates. The streams have natural meanders, back channels and debris dams, features that are otherwise rare in the lowlands. Ancient stands of ash-alder woodland have developed some 'old growth' characteristics with associated old forest lichens

- **H9190. Old acidophilous oak woods with *Quercus robur* on sandy plains; Dry oak-dominated woodland**

This habitat type generally comprises ancient lowland oak woodland on acidic, sandy or gravelly substrates. Ancient and veteran trees are relatively abundant in UK stands of this habitat type compared to examples in continental Europe, and are often associated with assemblages of notable lichens, fungi and/or invertebrates.

The SAC is characterised by stands of ancient oak- woodland and single or groups of veteran oak trees with old growth features as a relic of the Forest of Powerstock. These stands have a Powerstock Common has a distinctive wood-pasture structure derived from its use as grazing land forming vegetation consistent with the NVC types W10 Pedunculate Oak *Quercus robur* – bracken *Pteridium aquilinum* – bramble *Rubus fruticosus*. The old oaks are important habitat for an assemblage of rare epiphytic lichens that require continuity and stability.

## Qualifying Species:

- **S1065. *Euphydryas (Eurodryas, Hypodryas) aurinia*; Marsh fritillary butterfly**

The marsh fritillary butterfly *Euphydryas aurinia* is found in a range of habitats in which its larval food plant, devil's-bit scabious *Succisa pratensis*, occurs. Marsh fritillaries are essentially grassland butterflies in the UK, and although populations may occur occasionally on wet heath, bog margins and woodland clearings, most colonies are found in damp acidic or dry calcareous grasslands. In Northern Ireland it occurs in fens and on sand dunes. Management in both wet and dry situations is predominantly by low-intensity cattle or pony grazing. Sheep selectively graze devil's-bit scabious and are therefore detrimental to marsh fritillary populations, except at very low stocking rates. Burning and mowing are also known to have caused the extinction of populations.

Populations of marsh fritillary vary greatly in size from year to year, and, at least in part, this is related to cycles of attack from parasitic wasps. Adults tend to be sedentary and remain in a series of linked metapopulations, forming numerous temporary sub-populations, which frequently die out and recolonise. Where unable to do this, populations do not seem to be able to persist in habitat fragments. It is therefore essential to conserve a cluster of sites in close proximity.

*Euphydryas aurinia* has declined dramatically in Europe and is regarded as endangered or vulnerable in most of its European range. On the basis of existing knowledge, the UK and Spain constitute the European strongholds for this species.

The marsh fritillary *Euphydryas aurinia* population centred at Powerstock Common has the potential to disperse in favourable years to occupy more sites with suitable M24 *Molinia* pasture within the range of dispersal which could include chalk downland.

- **S1166 Great crested newt *Triturus cristatus***

The great crested newt is the largest native British newt, reaching up to around 17cms in length. Newts require aquatic habitats for breeding. Eggs are laid singly on pond vegetation in spring, and larvae develop over summer to emerge in August – October, normally taking 2–4 years to reach maturity. Juveniles spend most time on land, and all terrestrial phases may range a considerable distance from breeding site. The great crested newt population at West Dorset Alder Woods SAC is concentrated in a series of natural, post-industrial and recently constructed ponds at Powerstock Common with outlying farm ponds at Toller Porcorum SSSI.

The great crested newt is also fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended), making it a 'European Protected Species'. A Licence may therefore be required for any activities likely to harm or disturb great crested newts.

**Table 1: Supplementary Advice for Qualifying Features: H6410. *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*); Purple moor-grass meadows**

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>	<p>Restore the total extent of the H6410 purple moor-grass feature to its full potential where soils and hydrology etc. are suitable</p> <p>Current extent is circa 10 ha with potential to increase the area.</p>	<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>H6410 purple moor-grass meadows is present across the SAC on peaty or gleyed mineral soils with impeded drainage</p> <p>M24 is present extensively in unenclosed grazings at Powerstock Common &amp; Wytherston Farm SSSI. Toller Porcorum SSSI has M24 in enclosed meadows at Stones Common and at Clift Lane</p> <p>Target set to Restore as there are areas with suitable soils etc. where there is encroachment of e.g. blackthorn, birch, gorse and mixed scrub. There is also a need for sustainable grazing to be maintained or instigated to create a varied sward structure with species diversity.</p>	<p>NATURAL ENGLAND (2014)</p> <p>NATURAL ENGLAND (2015)</p> <p>NATURAL ENGLAND (2016)</p> <p>SANDERSON N.A. (2002)</p> <p>UK NATIONAL ECOSYSTEM ASSESSMENT (2010)</p> <p>WHEELER, B.D. <i>et al.</i>(2004)</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Extent and distribution of the feature</b>	<b>Spatial distribution of the feature within the site</b>	<p>Restore the distribution and configuration of the H6410 purple moor-grass , including where applicable its component vegetation types, across the site</p> <p>M24 <i>Molinia caerulea</i> – <i>Cirsium dissectum</i> fen-meadow with MG9 <i>Holcus lanatus-Deschampsia cespitosa</i> grassland</p>	<p>A contraction in the range, or geographic spread, of the H6410 purple moor-grass (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> <p>M24 is present extensively in unenclosed grazings at Powerstock Common &amp; Wytherston Farm SSSI. Toller Porcorum SSSI has M24 in enclosed meadows at Stones Common and at Clift Lane</p> <p>Target set to Restore as there are areas with suitable soils etc. where there is encroachment of e.g. willow, blackthorn, birch, gorse and mixed scrub. There is also a need for sustainable grazing to be maintained or instigated to create a varied sward structure with species diversity.</p>	See references in Extent attribute above.
<b>Structure and function (including its typical species)</b>	<b>Vegetation community composition</b>	Ensure the component vegetation communities of the H6410 purple moor-grass are referable to and characterised by the following National Vegetation Classification types	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>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		M24 <i>Molinia caerulea</i> – <i>Cirsium dissectum</i> fen-meadow with MG9 <i>Holcus lanatus-Deschampsia cespitosa</i> grassland	<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>Target set to Restore as there are areas with suitable soils etc. where there is encroachment of e.g. blackthorn, birch, gorse and mixed scrub. There is also a need for sustainable grazing to be maintained or instigated to create a varied sward structure with species diversity.</p>	
<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 Annex 1 habitat;</p> <ul style="list-style-type: none"> <li>Constant and preferential plant species of M24 <i>Molinia caerulea</i> – <i>Cirsium dissectum</i> fen-meadow NVC communities which form part of the H410 feature at this SAC.</li> </ul>	<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>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>Target set to Restore as there are areas with suitable soils etc.</p>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			where there is encroachment of e.g. willow, blackthorn, birch, gorse and mixed scrub. There is also a need for sustainable grazing to be maintained or instigated to create a varied sward structure with species diversity.	
<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 hydrology which may encourage their spread	<p>Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted succession to a different and less desirable state. Often they may be indicative of a negative trend relating to another aspect of a site's structure and function. These species will vary depending on the nature of the particular feature, and in some cases these species may be natural/acceptable components or even dominants.</p> <p>Many of the species listed are natural components of M24 <i>Molinia</i> meadows and will be beneficial for e.g. invertebrates, birds and small mammals. However, in certain circumstances (such as when they encroach on stands of rare plants or become extremely abundant) they can be undesirable and/or indicate negative pressures on the site.</p> <p>Undesirable species may include:</p> <ul style="list-style-type: none"> <li>• Mixed scrub e.g. blackthorn, gorse, willow</li> <li>• Tree regeneration e.g. oak, birch, willow</li> <li>• All invasive non-native species, including <i>Impatiens glandulifera</i> Indian balsam</li> <li>• Negative indicators e.g. <i>Cirsium arvense</i> Creeping thistle; <i>Cirsium palustre</i> Marsh thistle; <i>Cirsium vulgare</i> Spear thistle; <i>Deschampsia cespitosa</i> Tufted hair-grass; <i>Juncus acutiflorus</i> Sharp-flowered rush; <i>Juncus articulatus</i> Jointed rush; <i>Juncus subnodulosus</i> Blunt-flowered rush; <i>Juncus conglomeratus</i> Compact rush; <i>Juncus effusus</i> Soft rush; <i>Juncus inflexus</i> Hard rush; <i>Molinia caerulea</i> Purple moor-grass; <i>Myrica gale</i> Bog-myrtle; <i>Phragmites australis</i> Common reed; <i>Rumex crispus</i> Curled dock; <i>Rumex obtusifolius</i> Broad-leaved dock; <i>Senecio aquaticus</i> Marsh ragwort; <i>Urtica dioica</i> Common nettle</li> </ul>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Target set to Restore as there are areas with suitable soils etc. where there is encroachment of e.g. willow, blackthorn, birch, gorse and mixed scrub. There is also a need for sustainable grazing to be maintained or instigated to create a varied sward structure with species diversity.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation community transitions</b>	Restore the pattern of natural vegetation zonations/transitions	<p>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.</p> <p>H6410 purple moor-grass meadows is present in the SAC on peaty or gleyed mineral soils with impeded drainage. Target set to Restore as there are areas with suitable soils etc. where there is encroachment of e.g. willow, blackthorn, birch, gorse and mixed scrub. There is also a need for sustainable grazing to be maintained or instigated to create a varied sward structure with species diversity. There has been historic tree planting which is gradually being cleared.</p>	See references in Extent attribute above
<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. For this feature, soil P index should typically be index 0 (< 9 mg l <sup>-1</sup> )	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.	See references in Extent attribute above
<b>Structure and function (including its typical species)</b>	<b>Water quality</b>	Where the feature is dependent on surface water and/or groundwater, restore water quality and quantity to a standard which provides the necessary conditions to support the feature	<p>For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type.</p> <p>Typically, meeting the surface water and groundwater</p>	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.	
<b>Structure and function (including its typical species)</b>	<b>Hydrology: Water table</b>	Restore a hydrological regime that provides a sub-surface water table during the summer (range - 2 to -48 cm below ground level) and a winter water table $\pm$ at the surface. Inundation should be absent or only occasional to a minor degree in winter	<p>Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in 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 as precise tolerances are not known, further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts.</p> <p>Target set to Restore because planted conifers and mixed broadleaves ditches could be disrupting the hydrology and drawing water away from the <i>Molinia</i> pastures particularly in the summer months and this requires further investigation.</p>	See references in Extent attribute above
<b>Structure and function (including its typical species)</b>	<b>Supporting off-site habitat</b>	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the feature	<p>Include only where applicable. The structure and function of the qualifying habitat, including its typical species, may rely upon the continued presence of areas which surround and are outside of the designated site boundary. Changes in surrounding land-use may adversely (directly/indirectly) affect the functioning of the feature and its component species. This supporting habitat may be critical to the typical species of the feature to support their feeding, breeding, roosting, population dynamics ('metapopulations'), pollination or to prevent/reduce/absorb damaging impacts from adjacent land uses e.g. pesticide drift, nutrient enrichment.</p> <p>The West Dorset Alder Woods SAC lies in a biodiversity hotspot and <i>Molinia</i> meadows are located in the surrounding landscape outwith the SAC (and SSSI) at e.g. Wytherston Marsh. Species with a meta population structure e.g. marsh fritillary butterfly are reliant on suitable habitat within dispersal range to increase the resilience of the population and the habitat.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Structure and function (including its typical species)</b>	<b>Maintaining integrity of hydrological catchment</b>	Restore the full range of hydrological/hydrogeological aspects of a site's catchment that contribute to its functioning and the maintenance of the feature	<p>The movement, quality and distribution of water within a site's wider catchment and outside of the site's boundary will affect its ability to support this wetland habitat feature. Catchment size will vary. A site's water table and other hydrological aspects may be affected by changes in the use of the land surface, water abstraction, flood alleviation, development and mineral extraction in the wider catchment.</p> <p>Target set to Restore because planted conifers and mixed broadleaves ditches could be disrupting the hydrology and drawing water away from the Molinia pastures particularly in the summer months and this requires further investigation.</p>	See references in Extent attribute above
<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. These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial.</p> <p>Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.</p>	See references in Extent attribute above
<b>Structure and function (including its typical species)</b>	<b>Adaptation and resilience</b>	Restore the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site	This recognises the increasing likelihood of natural habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution,	Natural England, 2015. <a href="#">Climate Change Theme Plan and supporting NBCCV Assessments for SACs and SPAs</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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 moderate, taking into account the sensitivity, fragmentation, topography and management of its habitats and supporting habitats. This means that this site is considered to be vulnerable overall but moderately so.</p> <p>This means that some adaptation action for specific issues may be required, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the habitat into more varied landscapes and addressing particular management and condition issues. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.</p>	
<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> ).	<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>	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> ).

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<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>Target set to restore as intensive game management within or adjacent to the SAC can cause elevated levels of ammonia, nitrogen and phosphate.</p>	
<b>Supporting processes (on which the feature relies)</b>	<b>Conservation measures</b>	Restore 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.</p> <p>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>Conservation measures for this feature typically include grazing, cutting, scrub management, weed control, recreation/visitor management. Also covered is maintenance of surface drainage features such as drains, grips, gutters and foot drains. Retention of suitable land use infrastructure/patterns to enable site management e.g. pastoral livestock farming</p> <p>Target set to Restore because:</p> <ul style="list-style-type: none"> <li>there are areas with suitable soils etc. where there is encroachment of e.g. willow, blackthorn, birch, gorse and mixed scrub. There is also a need for sustainable grazing to be maintained or instigated to create a varied sward structure with species diversity</li> </ul>	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<ul style="list-style-type: none"> <li>planted conifers and mixed broadleaves ditches could be disrupting the hydrology and drawing water away from the Molinia pastures particularly in the summer months and this requires further investigation</li> </ul>	
<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: H91E0. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, *Alnion incanae*, *Salicion albae*); Alder woodland on floodplains \***

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 estimated to be circa 150 ha.	<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>For this feature tree roots (particularly of veteran trees) can extend a considerable distance beyond the boundary of the site - they can be impacted by soil compaction (such as caused by vehicles or construction works); agricultural operations or other soil disturbance (like trenches); and agro chemicals or other chemicals which get into the soil. Any loss of woodland area - whether at the edge or in the middle of a site will reduce the core woodland area where woodland conditions are found - these support significant assemblages of species dependent on woodland conditions (e.g. lichens and bryophytes - being one example). Loss of any woodland area which fragments a site into different parts will clearly disturb the movement of species between the remaining parts of the woodland.</p>	<p>EDWARDS, B. (2000)</p> <p>GREENAWAY, F. (2003)</p> <p>FORESTRY COMMISSION (1994)</p> <p>GOSLING, P.G., MCCARTAN, S.A. &amp; PEACE, A.J. (2009)</p> <p>NATURAL ENGLAND (2014)</p> <p>NATURAL ENGLAND (2015)</p> <p>NATURAL ENGLAND AND FORESTRY COMMISSION (2015)</p> <p>READ, D.J., FREER-SMITH, P.H., MORISON, J.I.L., HANLEY, N., WEST, C.C. AND SNOWDON, P. (EDS). (2009)</p> <p>RAY D. MORISON J. &amp; BROADMEADOW, M. (2010)</p> <p>SANDERSON N.A. (2002)</p> <p>UK NATIONAL ECOSYSTEM ASSESSMENT (2010)</p> <p>This attribute will be periodically monitored as part of Natural</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				England's <a href="#">SSSI Condition Assessments</a>
<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>	See references in Extent attribute above
<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 types</p> <ul style="list-style-type: none"> <li>• W1 <i>Salix cinerea</i> – <i>Galium palustre</i></li> <li>• W5 <i>Alnus glutinosa</i> – <i>Carex paniculata</i></li> <li>• W6 <i>Alnus glutinosa</i> – <i>Urtica dioica</i></li> <li>• W7 <i>Alnus glutinosa</i> – <i>Fraxinus excelsior</i> –</li> </ul>	<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>The alder woods in west Dorset are located on complex geology i.e. chalk, greensand and gault clay with unstable valley slopes where landslips are common. The dynamic nature</p>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<i>Lysimachia nemorum</i>	of this woodland can result in the alder stands being found within intimate mosaic with ash W8 <i>Fraxinus excelsior</i> – <i>Acer campestre</i> – <i>Mercurialis perennis</i> woodland and oak W10 <i>Quercus robur</i> – <i>Pteridium aquilinum</i> – <i>Rubus fruticosus</i> woodland and open tall fen with great horsetail <i>Equisetum telmateia</i> and hemlock water dropwort <i>Oenanthe crocata</i> or tussock sedge <i>Carex paniculata</i> .	
<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 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.</p>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<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</p>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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>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.	See references in Extent attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI 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	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. 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.	See references in Extent attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - age class distribution</b>	Restore 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  Severe browsing by Fallow Deer <i>Dama dama</i> is suppressing regeneration across the SAC.	See references in Extent attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - shrub layer</b>	Maintain an understorey of shrubs covering 10 - 60% of the stand area (this will vary with	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	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>typical species)</b>		light levels and site objectives)	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="#">SSSI 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 scrub.	Woodland edge is defined as being the transitional zone between the forest feature and adjacent but different habitat types - the best woodland edges will have a varied structure in terms of height and cover. Many typical forest species make regular use of the edge habitats for feeding due to higher herb layer productivity and larger invertebrate populations.  Grasslands / arable fields managed with high doses of agro-chemicals could potentially not allow this gradation of woodland edge and could have other impacts on the integrity of the site (pollution/ nutrient enrichment etc.).	See references in Extent attribute above
<b>Structure and function (including its typical species)</b>	<b>Adaptation and resilience</b>	Restore the resilience of the feature by ensuring a diversity (at least 3 species) of site-native trees (e.g. alder, willow - Salix spp, ash, elm - Ulmus spp, black poplar) across the site.	This recognises the increasing likelihood of natural habitat features needing 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.  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.  Severe Fallow deer browsing is suppressing regeneration across the SAC. Tree disease e.g. ash dieback is a serious threat to the long term integrity of the woods particularly with the high levels of deer browsing which are suppressing regeneration	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Structure and function (including its typical species)</b>	<b>Browsing and grazing by herbivores</b>	Restore browsing to a (low) level that allows well developed understorey with no obvious browse line, & lush ground vegetation with some grazing sensitive species evident (bramble, ivy etc.), and tree seedlings and sapling common in gaps.	<p>Herbivores, especially deer, are an integral part of woodland ecosystems. They are important in influencing woodland regeneration, composition and structure and therefore in shaping woodland wildlife communities. In general, both light grazing and browsing is desirable to promote both a diverse woodland structure and continuous seedling establishment. Short periods with no grazing at all can allow fresh natural regeneration of trees, but a long-term absence of herbivores can result in excessively dense thickets of young trees which shade out ground flora and lower plant species. However, heavy grazing by deer or sheep prevents woodland regeneration, and can cause excessive trampling and/or poaching damage, canopy fragmentation, heavy browsing, bark stripping and a heavily grazed sward.</p> <p>Severe Fallow deer browsing is suppressing regeneration across the SAC. Tree disease e.g. ash dieback is a serious threat to the long term integrity of the woods particularly with the high levels of deer browsing which are suppressing regeneration</p>	See references in Extent attribute above
<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>Severe Fallow deer browsing is suppressing regeneration across the SAC. Tree disease e.g. ash dieback is a serious threat to the long term integrity of the woods particularly with the high levels of deer browsing which are suppressing regeneration</p>	This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
<b>Structure and function</b>	<b>Tree and shrub species</b>	Maintain a canopy and understorey of which 95% is composed	Native trees and shrubs in general support a greater diversity of associated species than non-native species, especially	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(including its typical species)	composition	<p>of site native trees and shrubs</p> <p>High forest canopy and understorey with Ash, alder oak, elm, birch, willow spp, spindle, hazel, holly</p>	<p>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).</p>	<p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	<p>Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat</p> <ul style="list-style-type: none"> <li>• Constant and preferential plant species of the W1; W5; W6 and W7 woodland NVC communities which make up the H91E0 feature on this SAC.</li> <li>• Dormouse <i>Muscardinus avellanarius</i></li> <li>• Bechstein's Bat <i>Myotis bechsteinii</i></li> <li>• Outstanding wetland invertebrate assemblage</li> <li>• Petrified springs and seepages with calcareous tufa deposits are a feature of the SAC</li> </ul>	<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>• Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition').</li> <li>• Influential species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat)</li> <li>• Site-distinctive 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>	<p>See references in Extent attribute above</p>
Structure and function (including its	Invasive, non-native and/or introduced	<p>Ensure invasive and introduced non-native species are either rare or absent, but if present are</p>	<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</p>	<p>See references in Extent attribute above</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>typical species)</b>	<b>species</b>	causing minimal damage to the feature	<p>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> <p>Rearing of pheasants can be a significant source of temporary and more persistent nutrient enrichment and ground disturbance with associated soil erosion and predation of invertebrates. Introduced species such as snowberry can persist to the detriment of native flora and fauna and spread within and beyond both pens in use and in the location of former pens.</p>	CAPSTICK <i>et al.</i> (2019)
<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.	See references in Extent attribute above
<b>Supporting processes (on which the feature relies)</b>	<b>Water quality/ quantity</b>	Where the feature is dependent on surface water and/or groundwater, restore water quality and quantity to a standard which provides the necessary conditions to support the feature	<p>For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type.</p> <p>Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some</p>	See references in Extent attribute above



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>cases more stringent standards may be needed. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.</p> <p>Target set to Restore as there is both diffuse pollution and occasional incidents of point source pollution from surrounding farmland and game (pheasant ) rearing. Other sources of pollution include septic tanks.</p>	
<b>Supporting processes (on which the feature relies)</b>	<b>Hydrology</b>	At a site, unit and/or catchment level 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.	See references in Extent attribute above
<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 is considerable scope for improving the quality of unprotected wet woods in the wider SAC landscape e.g. the restoration of replanted ancient wet woods and restoring</p>	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			hydrological connectivity. Many woods are impacted by diffuse and upstream pollution	
<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. Alluvial forests can be dynamic in nature, being part of successional habitats and transitions to drier woodlands. Hydrological processes (including periodic inundation) are critical to how they function and must not be negatively impacted.	See references in Extent attribute above
<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.	See references in Extent attribute above
<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: H9190. Old acidophilous oak woods with *Quercus robur* on sandy plains; Dry oak-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>	Restore the total extent of the feature to land where Upper Greensand (circa 40ha) historically supported wood pasture.	<p>This target is included as there should be no measurable reduction (excluding any trivial loss) in the extent of this feature. Area measurements given may be approximate depending on the nature, age and accuracy of data collection. 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 reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis. For this feature, this attribute includes the extent of semi-natural wood-pasture mosaic area; tree'd area; the number of veteran trees (except through natural causes), including dead and living trees. Tree roots (particularly of veteran trees) may extend a considerable distance beyond the boundary of the site.</p> <p>A reduction of woodland/wood-pasture area - whether at the edge or in the middle of a site will reduce the core area where wood-pasture conditions are found - these support significant assemblages of species dependent on woodland conditions (e.g. lichens and bryophytes - being one example) Loss of any woodland area which fragments a site into different parts may interrupt the movement of species between the remaining part of the woodland, especially those with limited powers of dispersal.</p> <p>Old acidophilous oak woods are present as a relict feature of the former Powerstock Forest. Powerstock Common holds the majority of the old oak woodland on acid Greensand and Fuller's earth clay. Old oaks are present in pre-enclosure undisturbed wood pasture and survive in other areas as single hulks where the ancient 'common' landscape had been infilled with conifers. Conifer removal on greensand has revealed</p>	<p>EDWARDS, B. (2000)</p> <p>GREENAWAY, F. (2003)</p> <p>NATURAL ENGLAND (2014)</p> <p>NATURAL ENGLAND (2015)</p> <p>NATURAL ENGLAND AND FORESTRY COMMISSION (2015)</p> <p>READ, D.J., FREER-SMITH, P.H., MORISON, J.I.L., HANLEY, N., WEST, C.C. AND SNOWDON, P. (EDS). (2009)</p> <p>RAY D. MORISON J. &amp; BROADMEADOW, M. (2010)</p> <p>SANDERSON N.A. (2002)</p> <p>UK NATIONAL ECOSYSTEM ASSESSMENT (2010)</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>some of the old oak. The complex geology and hydrology provides outcrops of acid greensand across the SAC where single ancient oaks or groups of ancient trees are found throughout the woods and pastures.</p> <p>At Powerstock, Upper Greensand forms the high ridge from the south of Wytherston Wood south down the eastern edge of Powerstock Common and also outcrops in the far south east of Parsonage Common and historic maps are a good source of evidence for past land use. Other sites have bands of greensand geology where veteran oak trees are present either as relict wood pasture or in closed woodland.</p>	
<b>Extent and distribution of the feature</b>	<b>Spatial distribution of the feature within the site</b>	Restore 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> <p>Old acidophilous oak woods are present at Powerstock Common where undisturbed infilled pasture woodland to the south and north west, has curious and striking old oaks and other species, including an important population of veteran Hazels This area has a rich population epiphytic lichens, including RDB and Nationally Scarce species. The effect of</p>	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>deer grazing in maintaining more open understorey enhances conditions for these species. The undisturbed woodland is of high interest as a model for the wild wood as it has a distinctive and unusual structure unlike ex-coppice woodland.</p> <p>The upper slopes of Powerstock Common on the acid Greensand support long open areas (since before enclosure) dominated by dense Bracken – Bluebell communities, along with small open acid mires with acidic rhôs pasture. Below this woodland stands were cleared and conifers planted in the 1960s, there are relict Oak – Hazel and Alder woods with old oak. The conifers are being cleared and grazing reinstated.</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 types</p> <ul style="list-style-type: none"> <li>W10 <i>Quercus robur</i> – <i>Pteridium aquilinum</i> – <i>Rubus fruticosus</i> woodland</li> </ul>	<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>Old acidophilous oak woodland is present on sandy soils at Powerstock Common and Wytherston Farm SSSI as relict wood pasture with W10 woodland and U1 <i>Festuca ovina-Agrostis capillaris-Rumex acetosella</i> grassland.</p>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - old growth</b>	<p>Restore 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 &gt;10 trees per hectare).</p>	<p>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.</p> <p>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 may require</p>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			active management by 'recruiting' veterans (e.g. through tree ageing techniques where necessary) from the mature and younger trees, and ensuring sufficient regeneration - at a rate necessary to keep pace with the rate of veteran tree death at a particular site.	
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - open space</b>	Restore areas of permanent/temporary open space within the woodland feature, typically to cover between 20-40% 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>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Structure and function (including its typical species)</b>	<b>Vegetation structure - dead wood</b>	Restore the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m3 per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, 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 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>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Structure and function</b>	<b>Vegetation structure -</b>	Restore at least a third of ancient/veteran trees in open	Good woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(including its typical species)	ancient/ veteran tree trees	locations or with open halo around them, with younger cohorts of successor trees (<100 years; 100-200 years) each present over 10% of the site.	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 Annex I habitat type, individual trees of great age and/or size (veteran or ancient trees) are particularly characteristic and important features, and their continuity should be a priority. Protecting their root systems and the forest soils around them will also be important.	This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
Structure and function (including its typical species)	Vegetation structure - age class distribution	Restore at least 4 age classes (pole stage/ medium/ mature/over mature or veteran) spread across the average life expectancy of the commonest trees.	A distribution of size and age classes of the major site-native tree and shrub species that indicate the woodland will continue in perpetuity, and will provide a variety of the woodland habitats and niches expected for this type of woodland at the site in question.	See references in Extent attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
Structure and function (including its typical species)	Vegetation structure - shrub layer	Restore an understorey of scrub or young growth covering 10 - 25% of the site (this will vary with light levels and site objectives).	There is more opportunity for growth of scrub or young tree growth in wood-pasture sites because of higher light levels (although this will be limited by the presence of grazing animals) A lower level of shrub cover than that normally associated with woodland is acceptable in wood-pasture areas.  There are high numbers of fallow deer in the Powerstock Vales which have increased considerably in the last two decades. Their impact is seen in the significant browse line and absence of trees and shrub recruitment across much of the wood pasture. The detrimental impact on bramble <i>Rubus fruticosus</i> i.e. year on year browsing and suppression of growth, flowering and fruiting damages shrub structure and forage for birds, invertebrates and mammals such as dormouse.	See references in Extent attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
Structure and function (including its typical species)	Vegetation structure - woodland edge	Restore a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.	Woodland edge is defined as being the transitional zone between the forest feature and adjacent but different habitat types - the best woodland edges will have a varied structure in terms of height and cover. Many typical forest species make regular use of the edge habitats for feeding due to higher herb layer productivity and larger invertebrate populations. Grasslands / arable fields managed with high doses of agro-	See references in Extent attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			chemicals could potentially not allow this gradation of woodland edge and could have other impacts on the integrity of the site (pollution/ nutrient enrichment etc.).	
<b>Structure and function (including its typical species)</b>	<b>Adaptation and resilience</b>	Restore the resilience of the feature by ensuring a diversity (at least 2 species) of site-native trees (e.g. oak, birch, holly) across the site.	<p>This recognises the increasing likelihood of natural habitat features needing 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>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>Structure and function (including its typical species)</b>	<b>Browsing and grazing by herbivores</b>	Restore browsing at a (low) level that allows well developed understorey with no obvious browse line, & lush ground vegetation with some grazing sensitive species evident (bramble, ivy etc.), and tree seedlings and sapling common in gaps.	<p>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.</p> <p>Short periods with no grazing at all can allow fresh natural regeneration of trees, but a long-term absence of herbivores can result in excessively dense thickets of young trees which shade out ground flora and lower plant species. However, heavy grazing by deer or sheep prevents woodland regeneration, and can cause excessive trampling and/or poaching damage, canopy fragmentation, heavy browsing, barkstripping and a heavily grazed sward.</p> <p>There are high numbers of fallow deer in the Powerstock Vales which have increased considerably in the last two decades. Their impact is seen in the significant browse line and absence</p>	



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			of trees and shrub recruitment across much of the wood pasture. The detrimental impact on bramble <i>Rubus fruticosus</i> i.e. year on year browsing and suppression of growth, flowering and fruiting damages shrub structure and forage for birds, invertebrates and mammals such as dormouse.	
<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 ;	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.	
<b>Structure and function (including its typical species)</b>	<b>Tree and shrub species composition</b>	Restore a canopy and understorey of which 95% is composed of site native trees and shrubs E.g. oak, birch, holly, rowan, hawthorn, ash across the site.	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).	See references in Extent attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
<b>Structure and function (including its typical species)</b>	<b>Key structural, influential and/or distinctive species</b>	Restore the abundance of the typical species listed below to enable each of them to be a viable component of the H91feature  <ul style="list-style-type: none"> <li>Constant and preferential plant species of the W10 <i>Quercus robur</i> – <i>Pteridium aquilinum</i> – <i>Rubus fruticosus</i> woodland NVC community which forms part of the H9190 feature on this SAC.</li> </ul>	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; <ul style="list-style-type: none"> <li>Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition').</li> <li>Influential species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or</li> </ul>	See references in Extent attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<ul style="list-style-type: none"> <li>Epiphytic lichens characteristic of old growth woodlands e.g. <i>Lecanactidetum premneae</i> and <i>Lobarion</i> community.</li> <li>Wild Daffodil <i>Narcissus pseudonarcissus</i></li> <li>Bechstein's Bat <i>Myotis bechsteinii</i></li> </ul>	<p>other species with a significant functional role linked to the habitat)</p> <ul style="list-style-type: none"> <li>Site-distinctive 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>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>	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Structure and function (including its typical species)</b>	<b>Soils, substrate and nutrient cycling</b>	Restore 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,	<p>See references in Extent attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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>	Maintain the soil structure within and around the root zones of the mature and ancient tree cohort in 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.</p> <p>Plants have difficulty in compacted soil because the mineral grains are pressed together, leaving little space for air and water which are essential for root growth. Unless carefully managed, activities such as construction, forestry management and trampling by grazing livestock and human feet during recreational activity may all contribute to excessive soil compaction around ancient trees.</p>	See references in Extent attribute above
<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. These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial.</p> <p>Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.</p>	See references in Extent attribute above
<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	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	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> ).	<p>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>	( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).
<b>Supporting processes (on which the feature relies)</b>	<b>Hydrology</b>	At a site, unit and/or catchment level (as necessary, restore natural hydrological processes to provide the conditions necessary to sustain the feature within the site	<p>Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts.</p> <p>This is included as disruption/ damage to hydrological processes could be caused by activities at some distance from the site boundary. E.g. through extraction of ground or surface waters; diverting or damming river channels; pollution of water source; channel alignment that disrupts natural geomorphological processes; tunnelling etc.</p>	See references in Extent attribute above
<b>Supporting processes</b>	<b>Illumination</b>	Ensure artificial light is maintained at a level which is	Woodland biodiversity has naturally evolved with natural patterns of light and darkness, so disturbance or modification of	See references in Extent attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>(on which the feature relies)</b>		unlikely to affect natural phenological cycles and processes to the detriment of the feature and its typical species at this site.	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 4: Supplementary Advice for Qualifying Features: S1065. *Euphydryas (Eurodryas, Hypodryas) aurinia*; Marsh fritillary butterfly**

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Population (of the feature)</b>	<b>Population abundance</b>	Restore the abundance of the population	<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. 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.</p> <p>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 (generally at least 10 years). 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>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. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account in any assessment.</p> <p>Unless otherwise stated, the population size or presence will be that measured using standard methods, such as peak mean counts or breeding surveys. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection.</p>	<p>BULMAN <i>et al.</i> (2011)</p> <p>BUTTERFLY CONSERVATION, (2018)</p> <p>NATURAL ENGLAND (2014)</p> <p>NATURAL ENGLAND (2015)</p> <p>SANDERSON N.A. (2002)</p> <p>UK NATIONAL ECOSYSTEM ASSESSMENT (2010)</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise that the figures stated are the best available. For this feature counting the conspicuous larval webs is a good measure of population density; as well as the more standardised transect counts of adults.</p> <p>The SAC and environs has the potential to support a greater area of M24 Molinia pasture in favourable condition suitable to breeding marsh fritillary butterfly.</p> <p>See BUTTERFLY CONSERVATION, 2018 for count data and BULMAN <i>et al.</i> 2011 for historic perspective and trends.</p>	
<b>Supporting habitat: extent and distribution</b>	<b>Distribution of supporting habitat</b>	Restore the distribution and continuity of the feature and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site	A contraction in the range, or geographic spread, of the feature (and its component vegetation) 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. Contraction may also reduce and break up the continuity of a habitat within a site and how well the species feature is able to occupy and use habitat within the site. Such fragmentation may 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 this feature and this may affect its viability.	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Supporting habitat: extent and distribution</b>	<b>Extent of supporting habitat</b>	Restore the total extent of the habitats which support the feature where suitable soils and hydrology can support Molinia pasture	<p>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.</p> <p>Target set to Restore because encroaching scrub and tree cover needs to be reduced across the SAC in conjunction with suitable stock grazing system to achieve favourable condition.</p>	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat: structure/function	Ground moisture	Grazing regime should allow for a sufficiently long sward during the summer months to avoid desiccation of the <i>Succisa</i> plants on which the larvae feed.	Sward height should be long enough during spring/ summer months that the larval food plant does not become dessicated.	See references in Population Abundance attribute above
Supporting habitat: structure/function	Soils, substrate and nutrient cycling	Restore the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, within typical values for the supporting habitat	Soil supports basic ecosystem function and is 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 the supporting habitat of this Annex II feature.	See references in Population Abundance attribute above
Supporting habitat: structure/function	Vegetation composition - presence of food plants	Restore an abundance of devils-bit scabious <i>Succisa pratensis</i> within supporting habitat	As the feature's larval food plant, Devil's-bit Scabious <i>Succisa pratensis</i> should be common enough in the sward that there will always be a good and continuous number of suitable plants for egg-laying; this is particularly important on calcareous grassland sites, which are more prone to drought.	See references in Population Abundance attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
Supporting habitat: structure/function	Vegetation structure - sward height (neutral grassland)	Restore appropriate sward conditions, with a typical sward height of 8-25cm on average at the end of the grazing season.	The sward height should be long enough to ensure the <i>Succisa</i> is usable by the larvae.  Marsh fritillary nests are constructed in intermediate length swards (8-25 cm), Overall sward should be greater than 8 cm (excluding <i>Juncus</i> spp.) but no more than 25% over 60 cm. in areas which support, or have the potential to support, Marsh Fritillary. The food plant devil's-bit Scabious <i>Succisa pratensis</i> should be common enough in the sward that there will always be a good and continuous number of suitable plants for egg-laying.	See references in Population Abundance attribute above  This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>  <a href="https://butterfly-conservation.org/sites/default/files/marsh_fritillary-psf.pdf">https://butterfly-conservation.org/sites/default/files/marsh_fritillary-psf.pdf</a>  <a href="https://butterfly-conservation.org/sites/default/files/habitat-marsh-fritillary.pdf">https://butterfly-conservation.org/sites/default/files/habitat-marsh-fritillary.pdf</a>
Supporting processes	Adaptation and resilience	Restore the feature's ability, and that of its supporting habitat, to	This recognises the increasing likelihood of supporting habitat features to absorb or adapt to wider environmental changes.	See references in Population Abundance attribute above



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>(on which the feature and/or its supporting habitat relies)</b>		adapt or evolve to wider environmental change, either within or external to the site	<p>Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning.</p> <p>Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary.</p> <p>Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being moderate, taking into account the sensitivity, fragmentation, topography and management of its habitats and supporting habitats. This means that this site is considered to be vulnerable overall but moderately so. This means that some adaptation action for specific issues may be required, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the habitat into more varied landscapes and addressing particular management and condition issues. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.</p> <p>Target set to Restore because encroaching scrub and tree cover needs to be reduced across the SAC in conjunction with suitable stock grazing system.</p>	
<b>Supporting processes (on which the feature and/or its supporting</b>	<b>Air quality</b>	Maintain or, where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for	The supporting habitat of this feature 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 (including food-plants) and reducing	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)
<b>habitat relies)</b>		this feature of the site on the Air Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).	<p>supporting habitat quality and population viability of this feature.</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>	( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Conservation measures</b>	Restore 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 S1065 marsh fritillary and/or its supporting habitats.	<p>Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England.</p> <p>This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, site management strategies or plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>Molinia pastures require low intensity grazing management to maintain suitable structure and food plant density for the marsh fritillary butterfly. If grazing is too intensive the sward becomes too uniform and the abundance of devil's-bit scabious declines. Conversely, if grazing is insufficient then vegetation becomes too coarse. Optimum grazing regimes alone are not sufficient to control scrub and maintain open areas of Molinia pasture and additional scrub control is also required.</p>	See references in Population Abundance attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Target set to Restore because encroaching scrub and tree cover needs to be reduced across the SAC in conjunction with suitable stock grazing system.	
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Grazing pressure</b>	Restore a cattle or pony-dominated grazing regime. Stock may be removed May-September, but light continuous cattle grazing is more beneficial than short-term heavy grazing, as long as the correct sward structure is maintained and sites do not become overgrazed.	<p>Cattle grazing is preferable as it produces a less uniform sward; also sheep tend to selectively graze the Succisa, which is likely to be detrimental to marsh fritillary populations. If sheep are used it should be at a very low stocking ration (especially on calcareous sites, where care should be taken that sites aren't overgrazed, resulting in a short sward and increased risk of desiccation of Succisa plants (if they aren't actually eaten!). Sheep should not graze during the summer months - cattle/pony grazing during summer may be OK if at a low stocking density.</p> <p>Target set to Restore because encroaching scrub and tree cover needs to be reduced across the SAC in conjunction with suitable stock grazing system.</p>	See references in Population Abundance attribute above
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Water quantity/quality</b>	Where the feature or its supporting habitat is dependent on surface water and/or groundwater Restore water quality and quantity to a standard which provides the necessary conditions to support the feature	<p>For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type.</p> <p>Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed to reflect the ecological needs of the species feature. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.</p>	See references in Population Abundance attribute above
<b>Version Control</b>				
Advice last updated: N/A				
<b>Variations from national feature-framework of integrity-guidance: Supporting habitat: structure/ function – calcareous grassland</b> attribute removed as calcareous grassland not present within West Dorset Alder Woods SAC:				

**Table 5: Supplementary Advice for Qualifying Features: S1166. *Triturus cristatus*; Great crested newt**

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Population (of the feature)</b>	<b>Population abundance</b>	Restore the abundance of the population to a level which is above the maximum count of 124 (2003) 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. 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 (generally at least 10 years). 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>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. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account in any assessment.</p> <p>Unless otherwise stated, the population size or presence will be that measured using standard methods, such as peak mean counts or breeding surveys. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection. Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise that the figures</p>	<p>NATURAL ENGLAND (2014)</p> <p>NATURAL ENGLAND (2015)</p> <p>SANDERSON N.A. (2002)</p> <p>TEMPLE (2003)</p> <p>DORSET WILDLIFE TRUST (2018)</p> <p>UK NATIONAL ECOSYSTEM ASSESSMENT (2010)</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>stated are the best available. Estimating the average size of the GCN population will normally be based on the peak count of adults undertaken in the known peak season for the area, and in-year weather conditions; likely to be Mid-April to Mid May in central areas. The peak count is derived by summing the counts across the site on 'best' night for each season. Considerable natural between-year variation in population counts is frequent.</p> <p>Unless otherwise stated, the population size or presence will be that measured using standard methods, such as peak mean counts or breeding surveys. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection. Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise that the figures stated are the best available. Estimating the average size of the GCN population will normally be based on the peak count of adults undertaken in the known peak season for the area, and in-year weather conditions; likely to be Mid-April to Mid-May in central areas. The peak count is derived by summing the counts across the site on 'best' night for each season. Considerable natural between-year variation in population counts is frequent and has been noted on this site Despite a number of management actions in the past there are a number of risk factors such as pollution, predation and fish introduction which will be present in the long term.</p>	
<b>Population (of the feature)</b>	<b>Population viability</b>	Restore the abundance of the population at or above its target level.	<p>A "breeding pond" is defined as a pond in which egg-laying and successful metamorphosis (e.g. the pond doesn't dry up too soon) is likely to occur at least once every three years. The optimum time to survey for eggs is mid-March to mid-May. Presence of eggs can be recorded by day or night visits and surveys should be combined with visits for the adult component.</p> <p>Because of the number of extant and derelict ponds establishing a consistent picture of the functional role of the ponds for breeding is difficult; eDNA surveys can help to confirm presence and absence of great-crested newts in</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			individual ponds to help target more detailed surveys to confirm breeding through egg searches. Other methodologies such as torching and artificial egg substrates may also be used in combination although all methods are resource intensive. Ensuring that recruitment to the non-aquatic stage is also important where a detailed assessment is required.	
<b>Population (of the feature)</b>	<b>Supporting meta-populations</b>	Restore the connectivity of the SAC population to any associated metapopulations (either within or outside of the site boundary)	<p>Great crested newts often exist in metapopulations. A metapopulation is a group of associated populations made up of newts which breed in, and live around, a cluster of ponds. There will be some interchange of newts between these populations, even though most adults consistently return to the same pond to breed, and so it will be important to avoid the isolation of these populations from each other.</p> <p>A metapopulation associated with a SAC may occur outside of the designated site boundary. The connectivity of the wider local landscape to the SAC may therefore be important as this may help to ensure the survival of the overall population even if sub-populations are temporarily affected by, for example, pond desiccation or fish introductions.</p> <p>Dispersal rates of great crested newts vary, but capture/recapture studies have demonstrated movements up to 1.3km and individual animals have been known to travel over 1000m to colonise new ponds.</p> <p>The distances between ponds within the SAC are well within the above dispersal distances of individual newts so it is considered that the populations within the SSSI form one or more metapopulations.</p> <p>The site is also considered to be of interest because it is a good example of a great crested newt metapopulation based on a series of natural and man-made ponds and semi-natural terrestrial habitats comprising grasslands and woodlands. Many other nationally important great crested newt populations are found in old quarry sites and West Dorset Alder Woods SAC has a good degree of naturalness compared with these. A</p>	<p>See references in Population Abundance attribute above</p> <p>DORSET WILDLIFE TRUST (2018)</p> <p>TEMPLE (2003)</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>metapopulation associated with the SAC may occur outside of the designated site boundary. The connectivity of the wider local landscape to the SAC may therefore be important as this may help to ensure the survival of the overall population even if sub-populations are temporarily affected by, for example, pond desiccation or fish introductions.</p> <p>The great crested newt population at West Dorset Alder Woods SAC is concentrated in a series of 28 natural, post-industrial and recently constructed ponds at Powerstock Common with a small number of outlying farm ponds at Toller Porcorum SSSI. In 2018 it was found that of the 28 ponds at Powerstock Common 23 held water consistently and from 2011 - 2018 great crested newt was recorded breeding in 8 ponds with consistent breeding in 7 ponds (population numbers tbc)</p> <p>Two ponds at Toller Porcorum SSSI have restoration potential where there have been very sporadic records of great crested newt since 2003. Outlying ponds within 1km at Drakenorth SSSI (outwith the SAC) hold small numbers of great crested newt. Neither of the outlying sites are considered to be part of the same meta-population but this needs further investigation.</p>	
<b>Supporting habitat: extent and distribution</b>	<b>Distribution of supporting habitat</b>	Restore the distribution and continuity of the feature and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation) 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. Contraction may also reduce and break up the continuity of a habitat within a site and how well the species feature is able to occupy and use habitat within the site. Such fragmentation may 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 this feature and this may affect its viability.</p> <p>A range of sizes profiles and aged ponds occurs across the site. The distribution of wetland and scrub/woodland features provides for hibernation/ foraging and movement requirements</p>	<p>See references in Population Abundance attribute above</p> <p>DORSET WILDLIFE TRUST (2018)</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>at present.</p> <p>The great crested newt population at West Dorset Alder Woods SAC is concentrated in a series of 28 natural, post-industrial and recently constructed ponds at Powerstock Common with a small number of outlying farm ponds at Toller Porcorum SSSI. In 2018 it was found that of the 28 ponds at Powerstock Common 23 held water consistently and from 2011 - 2018 great crested newt was recorded breeding in 8 ponds with consistent breeding in 7 ponds (population numbers tbc)</p> <p>Two ponds at Toller Porcorum SSSI have restoration potential where there have been very sporadic records of great crested newt since 2003. Outlying ponds within 1km at Drakenorth SSSI (outwith the SAC) hold small numbers of great crested newt. Neither of the outlying sites are considered to be part of the same meta-population but this needs further investigation.</p>	
<b>Supporting habitat: extent and distribution</b>	<b>Extent of supporting habitat</b>	Restore the total extent of the habitats which support the feature	<p>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.</p> <p>The great crested newt population at West Dorset Alder Woods SAC is concentrated in a series of 28 natural, post-industrial and recently constructed ponds at Powerstock Common with a small number of outlying farm ponds at Toller Porcorum SSSI. In 2018 it was found that of the 28 ponds at Powerstock Common 23 held water consistently and from 2011 - 2018 great crested newt was recorded breeding in 8 ponds with consistent breeding in 7 ponds (population numbers tbc)</p> <p>Two ponds at Toller Porcorum SSSI have restoration potential where there have been very sporadic records of great crested newt since 2003. Outlying ponds within 1km at Drakenorth</p>	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p> <p>DORSET WILDLIFE TRUST (2018)</p>



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>SSSI (outwith the SAC) hold small numbers of great crested newt. Neither of the outlying sites are considered to be part of the same meta-population but this needs further investigation.</p> <p>Gross change can be monitored using remote sensing techniques e.g. drones flights, air photography and satellite imagery.</p>	
<b>Supporting habitat: structure/function</b>	<b>Cover of macrophytes</b>	Restore a high cover of macrophytes, typically between 50-80%, within ponds	Marginal and emergent vegetation are important components of a great crested newt pond as they provide excellent egg-laying sites. Good plants for this purpose include water forget-me-not <i>Myosotis scorpioides</i> , flote/sweet grass <i>Glyceria fluitans</i> and great hairy willowherb <i>Epilobium hirsutum</i> . They are, however, an integral part of the natural successional change of a waterbody and whilst it is preferable to have a good range and area of marginal plants, they should not extend across the entire water surface. In most circumstances it will be desirable to retain a fringe of marginal and emergent vegetation around at least half of a pond's edge. Where the marginal vegetation is particularly invasive, and provides no specific benefit to crested newts, it may be decided that its complete removal is necessary.	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Supporting habitat: structure/function</b>	<b>Overall Habitat Suitability Index score</b>	For this SAC Restore an overall Great Crested Newt Habitat Suitability Index score of no less than 0.8.	<p>The Habitat Suitability Index provides a measure of evaluating habitat quality and quantity for Great Crested Newts. The Index score lies between 0 and 1, with 1 representing optimal GCN habitat. In general, the higher the index score the more likely the site is to support great crested newts.</p> <p>The HSI methodology is documented in ARG-UK Advice Note 5 (May 2010). The HSI should not be used as a substitute for more detailed surveys and consideration of other attributes where necessary.</p>	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Supporting habitat: structure/function</b>	<b>Permanence of ponds</b>	Restore the permanence of water within ponds present within the site	Ponds to include breeding ponds as well as non-breeding ponds, since the latter may be used for foraging or sustaining prey populations. Ponds should have a high degree of permanence (they never or rarely dry out other than through natural drought) and this may be adversely affected by changes in the supply or flow of water (from either surface	DORSET WILDLIFE TRUST (2018)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>water and/or groundwater sources] to the ponds.</p> <p>The great crested newt population at West Dorset Alder Woods SAC is concentrated in a series of 28 natural, post-industrial and recently constructed ponds at Powerstock Common with a small number of outlying farm ponds at Toller Porcorum SSSI. In 2018 it was found that of the 28 ponds at Powerstock Common 23 held water consistently and from 2011 - 2018 great crested newt was recorded breeding in 8 ponds with consistent breeding in 7 ponds (population numbers tbc)</p> <p>Two ponds at Toller Porcorum SSSI have restoration potential where there have been very sporadic records of great crested newt since 2003. Outlying ponds within 1km at Drakenorth SSSI (outwith the SAC) hold small numbers of great crested newt. Neither of the outlying sites are considered to be part of the same meta-population but this needs further investigation.</p>	
<b>Supporting habitat: structure/function</b>	<b>Presence of fish and wildfowl</b>	Ensure fish and wildfowl are absent in all ponds.	<p>At high densities waterfowl (i.e. most water birds such as ducks, geese and swans but excluding moorhen) can remove all aquatic vegetation, adversely affect water quality and create turbid pond water conditions. Some may also actively hunt adult GCNs and their larvae. Similarly fish can be significant predators of GCN larvae. The presence of waterfowl and fish can reduce habitat suitability. These should be wholly absent from sites which support fewer than 5 ponds.</p> <p>It is not known whether there are native populations of stickleback or eels in the ditches and hence ponds, however this does not seem to be a concern at the time the advice was drafted. The presence of ornamental fish should be avoided entirely.</p>	See references in Population Abundance attribute above
<b>Supporting habitat: structure/function</b>	<b>Presence of ponds</b>	Restore the number or surface area of ponds present within the site	Ponds to include breeding ponds as well as non-breeding ponds, since the latter may be used for foraging or sustaining prey populations. The surface area of a pond is taken from when water reaches its highest level (excluding flooding events), which will usually be in the spring.	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>The great crested newt population at West Dorset Alder Woods SAC is concentrated in a series of 28 natural, post-industrial and recently constructed ponds at Powerstock Common with a small number of outlying farm ponds at Toller Porcorum SSSI. In 2018 it was found that of the 28 ponds at Powerstock Common 23 held water consistently and from 2011 - 2018 great crested newt was recorded breeding in 8 ponds with consistent breeding in 7 ponds (population numbers tbc)</p> <p>Two ponds at Toller Porcorum SSSI have restoration potential where there have been very sporadic records of great crested newt since 2003. Outlying ponds within 1km at Drakenorth SSSI (outwith the SAC) hold small numbers of great crested newt. Neither of the outlying sites are considered to be part of the same meta-population but this needs further investigation.</p>	<p><a href="#">Assessments</a></p> <p>DORSET WILDLIFE TRUST (2018)</p>
<b>Supporting habitat: structure/function</b>	<b>Shading of ponds</b>	Ensure pond perimeters are generally free of shade (typically no more than 60% cover of the shoreline)	<p>Shading from trees and/or buildings (not including emergent pond vegetation) can negatively affect the abundance of marginal vegetation in ponds, water temperature and the rate of hatching and development of great crested newt eggs and larvae.</p> <p>An assessment of all ponds will be required to consider trends and any necessary management action</p>	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Supporting habitat: structure/function</b>	<b>Soils, substrate and nutrient cycling</b>	Restore the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, within typical values for the supporting habitat	Soil supports basic ecosystem function and is 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 the supporting habitat of this Annex II feature.	See references in Population Abundance attribute above
<b>Supporting habitat: structure/function</b>	<b>Supporting terrestrial habitat</b>	Restore the quality of terrestrial habitat likely to be utilised by Great Crested Newts, with no fragmentation of habitat by significant barriers to newt dispersal.	Great crested newts need both aquatic and terrestrial habitat. Good quality terrestrial habitat, particularly within 500m of the breeding ponds, provides important sheltering, dispersing and foraging conditions and can include all semi-natural habitat along with meadows, rough tussocky grassland, scrub, woodland, as well as 'brownfield' land or low-intensity farmland.	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Good quality terrestrial habitat for GCNs has structural diversity which can be provided by features such as hedges, ditches, stone walls, old farm buildings, loose stone/rocks, rabbit burrows and small mammal holes. Good habitat provides a range of invertebrates, such as earthworms, insects, spiders and slugs, on which GCNs are known to feed. Fragmentation refers to significant barriers to GCN movement such as walls and buildings, but not footpaths or tracks. Newts disperse over land to forage for food, and move between ponds. The distances moved during dispersal vary widely according to habitat quality and availability.</p> <p>At most sites, the majority of adults probably stay within around 250m of the breeding pond but may well travel further if there are areas of high quality foraging and refuge habitat extending beyond this range.</p>	
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Adaptation and resilience</b>	Restore 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	<p>This recognises the increasing likelihood of supporting habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning.</p> <p>Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary.</p> <p>Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being moderate, taking into account the sensitivity, fragmentation, topography</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)
			and management of its habitats and supporting habitats. This means that this site is considered to be vulnerable overall but moderately so. This means that some adaptation action for specific issues may be required, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the habitat into more varied landscapes and addressing particular management and condition issues. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.	
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Air quality</b>	Maintain or, where necessary, restore 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>The supporting habitat of this feature 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 (including food-plants) and reducing supporting habitat quality and population viability of this feature.</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>	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</b>	<b>Conservation measures</b>	Restore the management measures (either within and/or	Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further	See references in Population Abundance attribute above

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(on which the feature and/or its supporting habitat relies)		outside the site boundary as appropriate) which are necessary to Restore the structure, functions and supporting processes associated with the feature and/or its supporting habitats.	<p>details about the necessary conservation measures for this site can be provided by contacting Natural England.</p> <p>This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, site management strategies or plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>The great crested newt population at West Dorset Alder Woods SAC is concentrated in a series of 28 natural, post-industrial and recently constructed ponds at Powerstock Common with a small number of outlying farm ponds at Toller Porcorum SSSI. In 2018 it was found that of the 28 ponds at Powerstock Common 23 held water consistently and from 2011 - 2018 great crested newt was recorded breeding in 8 ponds with consistent breeding in 7 ponds (population numbers tbc)</p> <p>Two ponds at Toller Porcorum SSSI have restoration potential where there have been very sporadic records of great crested newt since 2003. Outlying ponds within 1km at Drakenorth SSSI (outwith the SAC) hold small numbers of great crested newt. Neither of the outlying sites are considered to be part of the same meta-population but this needs further investigation.</p> <p>The principal management measures on this site are:</p> <p>Maintain the extent, diversity and quality of pools and terrestrial habitat; through woodland/scrub management and restoration and/or maintenance of water levels.</p> <p>Monitor great crested newt populations (adults and eggs) every year.</p> <p>Monitor and control level of potentially harmful non-native invasive species.</p> <p>Prevent intentional and unintentional human damage through education and close liaison and communication with the</p>	<p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p> <p>DORSET WILDLIFE TRUST (2018)</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			owners and site managers.	
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Water quantity/quality</b>	Where the feature or its supporting habitat is dependent on surface water and/or groundwater Restore water quality and quantity to a standard which provides the necessary conditions to support the feature	<p>For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type.</p> <p>Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed to reflect the ecological needs of the species feature. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.</p> <p>The SAC at Toller Porcorum SSSI is vulnerable to changes in water levels (due to changes in drainage as well as long term precipitation) as well as water quality from external agricultural activities.</p>	See references in Population Abundance attribute above
<b>Supporting processes (on which the feature or its supporting habitat relies)</b>	<b>Water quality</b>	Maintain the quality of pond waters within the site as indicated by the presence of an abundant and diverse invertebrate community.	As the clarity and chemical status of water bodies supporting GCNs can be subjective, the presence of an abundant and diverse community of freshwater invertebrates can be indicative of suitable water quality standards. Invertebrate groups present should include groups such as mayfly larvae and water shrimps. This will ensure ponds support a healthy (mainly invertebrate) fauna to provide food for developing GCN larvae and adults.	<p>See references in Population Abundance attribute above</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Version Control</b> Advice last updated: <b>20 March 2019</b> following stakeholder feedback. <b>Population viability</b> additional explanatory text added aid understanding of survey methods to assess this attribute				
<b>Variations from national feature-framework of integrity-guidance:</b> N/A				

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