



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

**Ashdown Forest Special Area of Conservation (SAC)
Site Code: UK0030080**



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About this document

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

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

Where this site overlaps with other European Sites, you should also refer to the separate European Site Conservation Objectives and Supplementary Advice (where available) provided for those sites.

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.

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.

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.

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

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

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

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

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

About this site

European Site information

Name of European Site	Ashdown Forest Special Area of Conservation (SAC)
Location	East Sussex
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	1 April 2005
Qualifying Features	See section below
Designation Area	2729.00ha
Designation Changes	N/A
Feature Condition Status	Details of the feature condition assessments made at this site can be found using Natural England's Designated Sites System
Names of component Sites of Special Scientific Interest (SSSIs)	Ashdown Forest SSSI
Relationship with other European or International Site designations	The boundary of the SAC overlaps with the boundary of Ashdown Forest SPA. The Conservation Objectives for this site can be found here

Site background and geography

Ashdown Forest is an ancient area of tranquil open heathland occupying the highest sandy ridge-top of the High Weald Area of Outstanding Natural Beauty, within the High Weald National Character Area ([NCA Profile 122](#)). It is situated some 30 miles (48 km) south of London in the county of Sussex, England. Rising to an elevation of 732 feet (223 m) above sea level, its heights provide expansive vistas across the heavily wooded hills of the Weald to the chalk escarpments of the North Downs and South Downs on the horizon.

The underlying geology of Ashdown Forest is mostly sandstone, predominantly the Lower Cretaceous Ashdown Formation. This forms a layer varying from 500 feet (150 m) to 700 feet (210 m) thick, consists of fine-grained, silty interbedded sandstones and siltstones with subordinate amounts of shale and mudstone. It is the oldest Cretaceous geological formation that crops out in the Weald.

The underlying sandstone geology of the Ashdown Sands, when combined with a local climate that is generally wetter, cooler and windier than the surrounding area owing to the forest's elevation, which rises from 200 feet (61 m) to over 700 feet (210 m) above sea level, gives rise to sandy, largely podzolic soils that are characteristically acid, clay, and nutrient-poor. On these poor, infertile soils have developed heathland, valley mires and damp woodland. These conditions have never favoured cultivation and have been a barrier to agricultural improvement.

Ashdown Forest's origins lie as a medieval hunting forest created soon after the Norman conquest of England. By 1283 the forest was fenced in by a 23 miles (37 km) pale enclosing an area of some 20 square miles (5,200 ha). Ashdown Forest has a rich archaeological heritage. It contains much evidence of prehistoric human activity, with the earliest evidence of human occupation dating back to 50,000 years ago. There are important Bronze Age, Iron Age and Romano-British remains.

Ashdown Forest is famous as the setting for the Winnie-the-Pooh stories written by A. A. Milne, who lived on the northern edge of the forest and took his son, Christopher Robin, walking there. The artist E. H. Shepard drew on the landscapes of Ashdown Forest as inspiration for many of the illustrations he provided for the Pooh books

Ashdown Forest contains one of the largest single continuous blocks of lowland heath in south-east England, with both dry heaths and, in a larger proportion, wet heath. The survival of the forest's extensive heathlands has become all the more important when set against the large-scale loss of English lowland heathland over the last 200 years; within the county of East Sussex, heathland has shrunk by 50% over the last 200 years, and most of what remains is in Ashdown Forest. The damming of streams, digging for marl, and quarrying have produced several large ponds in a number of areas of the forest.

The site supports important assemblages of beetles, dragonflies, damselflies and butterflies, including the nationally rare silver-studded blue *Plebejus argus*, and birds of European importance, such as European nightjar *Caprimulgus europaeus*, Dartford warbler *Sylvia undata* and Eurasian hobby *Falco subbuteo*.

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:

- **H4030 European Dry Heaths**

The European Dry heath in Ashdown Forest is an extensive example of the south-eastern H2 *Calluna vulgaris* – *Ulex minor* community. This vegetation type is dominated by heather *Calluna vulgaris*, bell heather *Erica cinerea* and dwarf gorse *Ulex minor*, with transitions to other habitats. It supports important lichen assemblages, including species such as *Pycnothelia papillaria*. This site supported the most inland remaining populations of hairy greenweed *Genista pilosa* in Britain but it has not been recorded on the Forest since the 1970s.

- **H4010 Northern Atlantic wet heaths with *Erica tetralix***

Ashdown Forest contains one of the largest single continuous blocks of lowland heath in south-east England, with both H4030 European dry heaths and, in a larger proportion, wet heath present. The M16 *Erica tetralix* – *Sphagnum compactum* wet heath element provides suitable conditions for several species of bog-mosses *Sphagnum* spp., bog asphodel *Narthecium ossifragum*, deergrass *Trichophorum cespitosum*, common cotton-grass *Eriophorum angustifolium*, marsh gentian *Gentiana pneumonanthe* and marsh clubmoss *Lycopodiella inundata*.

Qualifying Species:

- **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 sites.

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: H4010. Northern Atlantic wet heaths with *Erica tetralix*; Wet heathland with cross-leaved heath

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	Extent of the feature within the site	Maintain the total extent of a mosaic of H4020 Northern Atlantic wet heath and H4030 European Dry heath communities at 2261.42ha	<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>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p> <p>NATURAL ENGLAND. 2011. Ashdown Forest Definitions of favourable condition for designated features of interest Available from Natural England</p>
Extent and distribution of the feature	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes.</p> <p>This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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>	
Structure and function (including its typical species)	Adaptation and resilience	<p>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</p>	<p>This recognises the increasing likelihood of natural habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning.</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.</p> <p>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>NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England [Available at http://publications.naturalengland.org.uk/publication/4954594591375360].</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	<p>This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. 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>	
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	<p>Maintain the abundance of the species listed to enable each of them to be a viable component of the Annex I habitat feature</p> <ul style="list-style-type: none"> • Constant and preferential plant species of the M16 <i>Erica tetralix</i> – <i>Sphagnum compactum</i> wet heath • Outstanding lichen and bryophyte assemblage • Populations of <i>Plebejus argus</i> (silver-studded blue) butterfly • Heathland invertebrate assemblages associated with early successional habitats 	<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"> • Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). • Influential species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat) • Site-distinctive species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. 	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		and slow flowing water through heathland.	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.	
Structure and function (including its typical species)	Vegetation community composition	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification type: <i>M16 Erica tetralix-Sphagnum compactum</i>	This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).	This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Structure and function (including its typical species)	Vegetation community transitions	Maintain any areas of transition between this and communities which form other heathland-associated habitats, such as dry and humid heaths, mires, acid grasslands, scrub and woodland.	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. This is an important attribute as many characteristic heathland species utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle. Woodland and heathland ratio is dynamic, and the exact proportions of each are less important than the dynamic	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>mosaic. The proportion of woodland to heathland across the site should remain roughly in the proportion 40% to 60%.</p>	
Structure and function (including its typical species)	Vegetation composition: bracken cover	Restore a cover of dense bracken which is low, typically at <5% for wet heath	<p>The spread of bracken <i>Pteridium aquilinum</i> is a problem on many lowland heathlands. The unpalatable nature and density of bracken as a tall-herb fern, and its decomposing litter, can smother and shade out smaller and more characteristic heathland vegetation. Usually active management of bracken is required to reduce or contain its cover across this habitat feature.</p> <p>But this fern has also some nature conservation value, for example on sites where fritillary butterflies occur and utilise bracken litter habitat.</p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p> <p>Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.</p>
Structure and function (including its typical species)	Vegetation structure: cover of dwarf shrubs	Maintain an overall cover of dwarf shrub species which is typically between 25-90%	<p>Variations in the structure of the heathland vegetation (vegetation height, amount of canopy closure, and patch structure) is needed to maintain high niche diversity and hence high species richness of characteristic heathland plants and animals. Many species also utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle. The structural character of the heathland feature is strongly influenced by the growing habits of its dominant species which in most cases will be ericoids (i.e. plants that look like heathers, including members of the Ericaceae and Empetraceae families).</p> <p>Dwarf shrubs contributing to the target are <i>Calluna vulgaris</i>, <i>E. cinerea</i>, <i>E. tetralix</i>, <i>Ulex minor</i>, <i>Vaccinium myrtillus</i>.</p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>
Structure and function (including its typical species)	Vegetation structure: cover of gorse	Cover of common gorse is low typically at <10%	<p>Gorse as a component of heathland is a very valuable wildlife habitat, and often a marker of relict heath and common. Both dense and spiny, it provides good, protected cover for many wildlife species: birds, mammals and reptiles; breeding habitat for rare or declining bird species, and excellent winter roosting. The flowers, borne at a time of year when other sources of pollen or nectar are in short supply, are particularly good for insects and other invertebrate pollinators.</p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>However gorse may cause problems if unchecked by dominating an area, eliminating other typical heathland species. Mature stands en masse may also be serious fire hazards.</p> <p>Judgement will be needed when assessing this attribute as levels of gorse cover will vary across the SAC at any one time; the key issue is that the levels of gorse cover should be appropriate to ensure maintenance of habitat quality. There should be no indication of declining condition of the associated habitat due to increasing dominance of gorse. This target does not apply to the more extensive continuous blocks of gorse which should be assessed separately for their suitability for Dartford Warbler</p>	
Structure and function (including its typical species)	Vegetation structure: heather age structure	Restore a diverse age structure amongst the ericaceous shrubs typically found on the site	<p>Each phase of growth associated with the characteristic heathers which dominate this feature also represents different microclimatic conditions and microhabitats which may provide shelter or food to other organisms. Therefore, it is important to maintain a mosaic of heather in different phases of growth.</p> <p>Typically this age structure will consist of between 10-40% cover of (pseudo) pioneer heathers; 20-80% cover of building/mature heathers; <30% cover of degenerate heathers and less than <10% cover of dead heathers</p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p> <p>Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.</p>
Structure and function (including its typical species)	Vegetation structure: tree cover	<p>Restore the open character of the feature, with a typically scattered and low cover of trees and scrub e.g. <i>Prunus spinosa</i>, <i>Betula</i>, <i>Pinus</i>, <i>Salix</i>, <i>Quercus</i> & <i>Rubus spp.</i>, <i>Alnus glutinosa</i>, <i>Salix sp.</i> <10%</p> <p>Up to 25% may be acceptable in specific areas if included within a management plan.</p>	<p>Scrub (mainly trees or tree saplings above 1 m in height) and isolated trees are usually very important in providing warmth, shelter, cover, foodplants, perches, territorial markers and sources of prey for typical heathland invertebrates and vertebrates. But overall cover of scrub and trees across this habitat feature should be maintained or restored to a fairly sparse level, with a structurally complex edge and with characteristic heathland vegetation as ground cover.</p> <p>If scrub is locally important for any associated species with their own specific conservation objectives, then a higher level of cover will be acceptable. The area of scrub/tree cover should be stable or not increasing as a whole.</p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Vegetation: undesirable species	Restore the frequency/cover of the following undesirable species to <1% 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>Undesirable Species include: <i>Rhododendron ponticum</i>, <i>Gaultheria shallon</i>, <i>Fallopia japonica</i>, <i>Apium nodiflorum</i>, <i>Cirsium arvense</i>, <i>Digitalis purpurea</i>, <i>Epilobium spp.</i> (excl. <i>E. palustre</i>), <i>Glyceria fluitans</i>, <i>Juncus effusus</i>, <i>J. squarrosus</i>, <i>Oenanthe crocata</i>, <i>Phragmites spp.</i>, <i>Ranunculus repens</i>, <i>Fallopia japonica</i>, <i>Senecio jacobaea</i>, <i>Rumex obtusifolius</i>, <i>Typha spp.</i>, <i>Urtica spp.</i>, <i>Prunus spinosa</i>, <i>Rubus spp.</i>, <i>Acrocarpous mosses (occasional)</i></p>	<p>This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments</p> <p>Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.</p>
Supporting processes (on which the feature relies)	Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	<p>This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.</p> <p>Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis.</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</p>	<p>More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk)</p> <p>Natural England (2014) Site Improvement Plan - Ashdown Forest SIP</p> <p>Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., Power, S., Sheppard, L. and Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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>The critical load at which nitrogen deposition becomes a problem for heathland has been determined as 10-20 kg N/ha/yr. Nevertheless, some evidence suggests that much lower loading can have significant negative impacts Caporn <i>et al.</i>, 2016).</p> <p>Modelling undertaken by Wealden District Council, Lewes District Council and other relevant Local Planning Authorities for Local Plan assessments has identified that increases in development coming forward within plans, would increase Nitrogen deposition, Nitrogen Oxides and ammonia adjacent to roads that run through Ashdown Forest from associated increased transport. However assessment of improvements in vehicular technology and in particular Euro6/VI standards that all vehicles are currently being manufactured to, will outweigh impacts from new development. The improvements will be marginally retarded by additional development but future nitrogen deposition and concentration will continue to decline with the existing trend.</p> <p>The site exceeds the critical load/level however Natural England Commissioned Report 210 identifies that expected increase in Nitrogen levels from additional transport would fall below the level that would reduce species richness on the site even if the expected declining trend in Nitrogen failed to materialise</p> <p>The background levels of Nitrogen are expected to decline with EU and Government clean air strategies and continue the existing downward trend. Notwithstanding the above, large inputs from industrial processes that could disperse over greater distances or large increases in vehicular movements not included within Local Authority modelling would need to be assessed separately for potential impacts on the site.</p>	<p>importance. Natural England Commissioned Report, Number 210.</p> <p>Air Quality Consultants. 2018. Ashdown Forest SAC Air Quality Monitoring and Modelling August 2018. Report to Wealden District Council</p> <p>ECUS Environmental Consultants. 2018. Ecological Monitoring at Ashdown Forest: Considering the Current and Future Impacts on the SAC caused by Air Quality and Nitrogen Deposition. Report to Wealden District Council</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Source attribution data on APIS identifies that agriculture is contributing to ammonia (and thus Nitrogen) concentrations and deposition. .	
Supporting processes (on which the feature relies)	Conservation measures	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. 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>One third of the heathland is currently fenced and grazing maintained. Favourable condition requires a diverse vegetation structure and grazing, in combination with some mechanical management, can achieve this. The condition of the heathland would be improved by more cattle, and expanding the grazing beyond the fenced areas.</p> <p>Outside of the permanently fenced areas, small sections (up to 50 ha, allowable under the 1974 Ashdown Forest Act and the 2006 Commons Act) are grazed each year, controlled with temporary fencing. The ability to target animals to specific areas would also be beneficial to the heathland.</p>	Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.
Supporting processes (on which the feature relies)	Hydrology	At a site, unit and/or catchment level (as necessary, Maintain the natural hydrological regime 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.	
Supporting processes	Soils, substrate and	Maintain the properties of the underlying soil types, including	Soil is the foundation of basic ecosystem function and a vital part of the natural environment. Its properties strongly influence	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(on which the feature relies)	nutrient cycling	structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the habitat.	<p>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.</p> <p>This Annex 1 habitat has essentially raw soils with little humus and low nutrient status.</p>	
Supporting processes (on which the feature relies)	Water quality	Where the feature is dependent on surface water and/or groundwater, maintain 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. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.</p>	
Version Control				
Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 2: Supplementary Advice for Qualifying Features: H4030. European dry heaths

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	Extent of the feature within the site	Maintain the total extent of a mosaic of H4020 Northern Atlantic wet heath and H4030 European Dry heath communities at 2261.42ha	See the explanatory notes for this attribute above in Table 1	This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments NATURAL ENGLAND. 2011. Ashdown Forest Definitions of favourable condition for designated features of interest Available from Natural England
Extent and distribution of the feature	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature.	
Structure and function (including its typical species)	Adaptation and resilience	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	See the explanatory notes for this attribute above in Table 1	NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England [Available at http://publications.naturalengland]

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				org.uk/publication/4954594591375360].
Structure and function (including its typical species)	Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. These connections may take the form of landscape features, such as habitat patches, hedges, watercourses and verges, outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site. These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.	
Structure and function (including its typical species)	Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the habitat.	Soil is the foundation of basic ecosystem function and a vital part of the natural environment. Its properties strongly influence the colonisation, growth and distribution of those plant species which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature.	
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	Maintain the abundance of the species listed to enable each of them to be a viable component of the Annex I habitat feature [<ul style="list-style-type: none"> The constant and preferential plants of the H2 <i>Calluna vulgaris-Ulex minor</i> heath NVC community type which forms a key component of a SAC habitat that is present 	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"> Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). Influential species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, 	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<ul style="list-style-type: none"> Outstanding lichen and bryophyte assemblage Populations of <i>Plebejus argus</i> (silver-studded blue) butterfly Heathland invertebrate assemblages associated with early successional habitats and slow flowing water through heathland. 	<p>predators or other species with a significant functional role linked to the habitat)</p> <ul style="list-style-type: none"> Site-distinctive species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. <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>	
Structure and function (including its typical species)	Vegetation community composition	<p>Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification type:</p> <p>H2: <i>Calluna vulgaris-Ulex minor</i> heath</p>	<p>This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC).</p> <p>Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).</p>	
Structure and function (including its typical species)	Vegetation community transitions	<p>Maintain any areas of transition between this and communities which form other heathland-associated habitats, such as dry and humid heaths, mires, acid grasslands, scrub and woodland.</p>	<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. This is an important attribute as many characteristic heathland species</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle.</p> <p>Woodland and heathland ratio is dynamic, and the exact proportions of each are less important than the dynamic mosaic. The proportion of woodland to heathland across the site should remain roughly in the proportion 40% to 60%.</p>	
Structure and function (including its typical species)	Vegetation composition: bracken cover	Restore a cover of dense bracken which is low, typically at <10%	The spread of bracken <i>Pteridium aquilinum</i> is a problem on many lowland heathlands. The unpalatable nature and density of bracken as a tall-herb fern, and its decomposing litter, can smother and shade out smaller and more characteristic heathland vegetation. Usually active management of bracken is required to reduce or contain its cover across this habitat feature. But this fern has also some nature conservation value, for example on sites where fritillary butterflies occur and utilise bracken litter habitat.	Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.
Structure and function (including its typical species)	Vegetation structure: cover of dwarf shrubs	Maintain an overall cover of dwarf shrub species which is typically between 25-90%	<p>Variations in the structure of the heathland vegetation (vegetation height, amount of canopy closure, and patch structure) is needed to maintain high niche diversity and hence high species richness of characteristic heathland plants and animals. Many species also utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle.</p> <p>The structural character of the heathland feature is strongly influenced by the growing habits of its dominant species which in most cases will be ericoids (i.e. plants that look like heathers, including members of the Ericaceae and Empetraceae families).</p> <p>Dwarf shrubs contributing to the target are <i>Calluna vulgaris</i>, <i>E. cinerea</i>, <i>E. tetralix</i>, <i>Ulex minor</i>, <i>Vaccinium myrtillus</i>.</p>	
Structure and function (including its typical species)	Vegetation structure: cover of gorse	Maintain cover of common gorse <i>Ulex europaeus</i> at <35% and the combined cover of <i>U. europaeus</i> and <i>U. gallii</i> at <25%	Gorse as a component of heathland is a very valuable wildlife habitat, and often a marker of relict heath and common. Both dense and spiny, it provides good, protected cover for many wildlife species: birds, mammals and reptiles; breeding habitat for rare or declining bird species, and excellent winter roosting. The flowers, borne at a time of year when other sources of pollen or nectar are in short supply, are particularly good for	Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>insects and other invertebrate pollinators. However gorse may cause problems if unchecked by dominating an area, eliminating other typical heathland species. Mature stands en masse may also be serious fire hazards.</p> <p>Judgement will be needed when assessing this attribute as levels of gorse cover will vary across the SAC at any one time; the key issue is that the levels of gorse cover should be appropriate to ensure maintenance of habitat quality. There should be no indication of declining condition of the associated habitat due to increasing dominance of gorse. This target does not apply to the more extensive continuous blocks of gorse which should be assessed separately for their suitability for Dartford Warbler</p>	
Structure and function (including its typical species)	Vegetation structure: heather age structure	Restore a diverse age structure amongst the ericaceous shrubs typically found on the site	<p>Each phase of growth associated with the characteristic heathers which dominate this feature also represents different microclimatic conditions and microhabitats which may provide shelter or food to other organisms. Therefore, it is important to maintain a mosaic of heather in different phases of growth.</p> <p>Typically this age structure will consist of between 10-40% cover of (pseudo) pioneer heathers; 20-80% cover of building/mature heathers; <30% cover of degenerate heathers and less than <10% cover of dead heathers</p>	Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.
Structure and function (including its typical species)	Vegetation structure: tree cover	<p>Restore the open character of the feature, with a typically scattered and low cover of trees and scrub e.g. <i>Prunus spinosa</i>, <i>Betula</i>, <i>Pinus</i>, <i>Salix</i>, <i>Quercus</i> & <i>Rubus spp.</i>, <i>Alnus glutinosa</i>, <i>Salix sp.</i> <15%</p> <p>Up to 25% may be acceptable in specific areas if included within a management plan.</p>	<p>Scrub (mainly trees or tree saplings above 1 m in height) and isolated trees are usually very important in providing warmth, shelter, cover, foodplants, perches, territorial markers and sources of prey for typical heathland invertebrates and vertebrates. But overall cover of scrub and trees across this habitat feature should be maintained or restored to a fairly sparse level, with a structurally complex edge and with characteristic heathland vegetation as ground cover.</p> <p>If scrub is locally important for any associated species with their own specific conservation objectives, then a higher level of cover will be acceptable. The area of scrub/tree cover should be stable or not increasing as a whole</p>	Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Vegetation: undesirable species	Restore the frequency/cover of the following undesirable species to <1% 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>Undesirable species include: ragwort, nettle, thistles and other herbaceous spp. <i>Cirsium arvense</i>, <i>Digitalis purpurea</i>, <i>Epilobium</i> spp. (excl. <i>E. palustre</i>), <i>Juncus effusus</i>, <i>J. squarrosus</i>, <i>Rumex obtusifolius</i>, <i>Urtica dioica</i>, <i>Senecio</i> spp. <i>Chamerion angustifolium</i>, <i>Ranunculus</i> spp., <i>Senecio</i> spp. coarse grasses</p>	Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.
Supporting processes (on which the feature relies)	Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See the supporting and explanatory notes for this attribute in Table 1.	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Supporting processes (on which the feature relies)	Conservation measures	Restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary Restore the structure, functions and supporting processes associated with the feature	<p>Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements. .</p> <p>One third of the heathland is currently fenced and grazing maintained. Favourable condition requires a diverse vegetation structure and grazing, in combination with some mechanical management, can achieve this. The condition of the heathland</p>	Ashdown Forest Management Plan 2016-2020 sets out the measures required to maintain and/or restore the habitat, and details the existing management measures which are in place.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			would be improved by more cattle, and expanding the grazing beyond the fenced areas. Outside of the permanently fenced areas, small sections (up to 50 ha, allowable under the 1974 Ashdown Forest Act and the 2006 Commons Act) are grazed each year, controlled with temporary fencing. The ability to target animals to specific areas would also be beneficial to the heathland.	
Supporting processes (on which the feature relies)	Hydrology	At a site, unit and/or catchment level (as necessary), maintain natural hydrological processes to provide the conditions necessary to sustain the feature within the site	Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. This target is generic and further site-specific investigations may be required to fully inform conservation measures and/or the likelihood of impacts.	
Supporting processes (on which the feature relies)	Water quality	Where the feature is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the feature	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. 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. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.	
Version Control				
Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 3: Supplementary Advice for Qualifying Features: S1166. *Triturus cristatus*; Great crested newt

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Population (of the feature)	Population abundance	Maintain the abundance of the population at a level which is above the 2008 baseline.	<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>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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.	
Population (of the feature)	Population viability	Maintain the presence of great crested newt eggs in breeding ponds at/to a level which is likely to maintain the abundance of the population at or above its target level.	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.	
Population (of the feature)	Supporting meta-populations	Maintain the connectivity of the SAC population to any associated metapopulations (either within or outside of the site boundary)	Great crested newts often exist in metapopulations. A meta-population 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. A meta-population 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.	
Supporting habitat: extent and distribution	Distribution of supporting habitat	Maintain 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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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.	
Supporting habitat: extent and distribution	Extent of supporting habitat	Maintain the total extent of the habitat(s) which support the feature at 112 ponds	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.	National Pond Inventory, 2007
Supporting habitat: structure/function	Cover of macrophytes	Maintain 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.	
Supporting habitat: structure/function	Overall Habitat Suitability Index score	For this SAC, Maintain an overall Great Crested Newt Habitat Suitability Index score of no less than 0.8.	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. 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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat: structure/function	Permanence of ponds	Maintain 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 water and/or groundwater sources) to the ponds.	
Supporting habitat: structure/function	Presence of fish and wildfowl	Ensure fish and wildfowl are absent from >75% of ponds as identified as suitable for great-crested newts.	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. Numbers required to fail: Fish: any number of individuals (need only to determine presence) Wildfowl: >4 pairs / ha of open water	Natural England (2013) – Definition of Favourable Condition – Ashdown Forest SSSI
Supporting habitat: structure/function	Presence of ponds	Maintain the number of ponds present within the site at 112	Ponds to include breeding ponds as well as non-breeding ponds, since the latter may be used for foraging or sustaining prey populations. Number of ponds is based on 2007 National Pond Survey	
Supporting habitat: structure/function	Shading of ponds	Ensure pond perimeters are generally free of shade (typically no more than 60% cover of the shoreline)	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.	
Supporting habitat: structure/function	Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, 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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with the supporting habitat of this Annex II feature.	
Supporting habitat: structure/function	Supporting terrestrial habitat	Maintain 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. 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. 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.	
Supporting processes (on which the feature and/or its supporting habitat relies)	Adaptation and resilience	Maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site	See the explanatory notes for this attribute above in Table 1	Natural England 2015 Climate Change Theme Plan and National Biodiversity Climate Change Vulnerability Assessments (NBCCVAs)
Supporting processes (on which the feature and/or its supporting habitat relies)	Air quality	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 (www.apis.ac.uk).	The specific habitats requirements for this interest feature are not considered to be particularly sensitive to air quality impacts. It is the structure and function only of the terrestrial habitat that is of relevance to GCN. The aquatic habitat is also not likely to be specifically impacted by air quality habitats as inland lakes and ponds are largely phosphate limited.	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting processes (on which the feature and/or its supporting habitat relies)	Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the feature and/or its supporting habitats.	Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, site management strategies or plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.	
Supporting processes (on which the feature and/or its supporting habitat relies)	Water quantity/ quality	Where the feature or its supporting habitat is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the feature	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. 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.	
Supporting processes (on which the feature or its supporting habitat relies)	Water quality	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.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				